ARCHAEOLOGIA:

OR

MISCELLANEOUS TRACTS

RELATING TO

ANTIQUITY.

ARCHAEOLOGIA:

OR

MISCELLANEOUS TRACTS

RELATING TO

ANTIQUITY,

PUBLISHED BY THE

SOCIETY OF ANTIQUARIES OF LONDON,

VOLUME LVIII.

LONDON:

PRINTED BY J. B. NICHOLS AND SONS, PARLIAMENT MANSIONS, VICTORIA STREET, WESTMINSTER.

SOLD AT THE SOCIETY'S APARTMENTS IN BURLINGTON HOUSE.

M.DCCCCII.

ARCHAEOLOGIA:

OR

MISCELLANEOUS TRACTS

RELATING TO

ANTIQUITY.

PUBLISHED BY THE

SOCIETY OF ANTIQUARIES OF LONDON.

SECOND SERIES. VOLUME VIII.

LONDON:

PRINTED BY J. B. NICHOLS AND SONS, PARLIAMENT MANSIONS, VICTORIA STREET, WESTMINSTER.

SOLD AT THE SOCIETY'S APARTMENTS IN BURLINGTON HOUSE.

M.DCCCCII.

DA20
A65
V.58 1

TABLE OF CONTENTS.

PAGE

I.—*On some rare forms of Bronze Weapons and Implements. By the Rev.* William Greenwell, *D.C.L., F.R.S., F.S.A.* - - - 1—16

II.—*Excavations on the site of the Roman city at Silchester, Hants, in* 1901. *By* W. H. St. John Hope, *Esq., M.A. With a note on the Plant-Remains of Roman Silchester. By* Clement Reid, *Esq., F.R.S.* 17—36

III.—*Recent Excavations at Stonehenge. By* William Gowland, *Esq., F.S.A., F.I.C., Associate of the Royal School of Mines. With a note on the Nature and Origin of the Rock-fragments found in the Excavations. By Professor* J. W. Judd, *C.B., LL.D., F.R.S., F.G.S.* 37—118

IV.—*Excavations at Caerwent, Monmouthshire, on the Site of the Romano-British City of Venta Silurum, in* 1901. *By* Thomas Ashby, *Jun., Esq., M.A., F.S.A.,* Alfred E. Hudd, *Esq., F.S.A., and* A. T. Martin, *Esq., M.A., F.S.A.* - - - - - - 119—152

V.—*Some familiar Letters of Charles II. and James Duke of York addressed to their daughter and niece, the Countess of Litchfield; transcribed and edited by* Harold Arthur, Viscount Dillon, *Hon. M.A. Oxon, President* - - - - - - - 153—188

VI.—*On the Destroyed Church of St. Michael Wood Street, in the City of London, with some Notes on the Church of St. Michael Bassishaw. By* Philip Norman, *Esq., Treasurer* - - - 189—216

VII.—*On a Saracenic Goblet of Enamelled Glass of mediæval date. By* Charles Hercules Read, *Esq., Secretary* - - - 217—226

VIII.—*The Charters of the Manor of Ropley, Hants. By* T. F. Kirby, *Esq., M.A., F.S.A., Local Secretary for Hants* - - - 227—236

PAGE

IX.—*On some points in the History of Inlaid Jewellery.* *By* O. M. Dalton, *Esq., M.A., F.S.A.* - - - - - - 237—274

X.—*The St. Albans School of Painting, Mural and Miniature: Part I. Mural Painting.* *By* William Page, *Esq., F.S.A.* - - 275—292

XI.—*The London Charterhouse and its old water supply.* *By* W. H. St. John Hope, *Esq., M.A.* - - - - - 293—312

XII.—*The Castles of the Conquest.* *By* J. H. Round, *Esq., M.A.* - 313—340

LIST OF ILLUSTRATIONS.

PLATE		PAGE
	Some rare forms of Bronze Weapons and Implements:	
	Fig. 1. Dagger, possibly from Hallstatt - - -	1
	Fig. 2. Bronze blade found at Kimberley - - -	3
	Fig. 3. Bronze blade found near Beaune - - -	4
	Fig. 4. Brone knife found near Colophon - - -	5
	Fig. 5. Silver pin found near Colophon - - -	6
	Fig. 6. Piece of a glass pendant found near Colophon -	6
	Fig. 7. Bronze knife found in the Island of Naxos - -	6
	Fig. 8. Bronze knife found near Nauplia - - -	7
	Fig. 9. Bronze knife found in Egypt - - - -	8
	Fig. 10. Bronze axe-head from Van, in Armenia - -	9
	Fig. 11. Bronze axe-head from Hamadan, Persia - -	9
	Fig. 12. Bronze axe-head from Khinaman - - -	10
	Fig. 13. Bronze axe found near Kertch - - -	12
	Fig. 14. Bronze axe found near Beyrût - - -	13
	Fig. 15. Bronze axe found near Beyrût - - -	14
	Fig. 16. Bronze axe, locality unknown - - -	15
I.	Silchester.—Plan of part of *Insula* XXII. - - facing	17
II.	Silchester.—Plan of *Insula* XXVII. . - - facing	18
III.	Silchester.—Mosaic pavement in House No. 1, *Insula* XXVII. facing	21
	Fig. 1. Stamped clay from Room (30), House No. 1, *Insula* XXVII. - - - - - - - -	25
	Fig. 2. Fragment of arch of a niche or recess, found in *Insula* XXII. - - - - - -	30

PLATE PAGE

Fig. 3. Inscribed tile found at Silchester - - - 30
Fig. 4. Diagram of lines on a tile, perhaps for use as a gaming-board - - - - - - 31
Fig. 5. Engraved glass with Christian emblems - - 32
Fig. 6. Block-plan of Silchester, showing portions excavated down to the end of 1901 - - - - - 33
IV. Stonehenge.—View of the "leaning stone" before it was set upright in 1901 - - - - - facing 37
Fig. 1. General view of Stonehenge after the "leaning stone" was set upright - - - - - 37
Fig. 2. View of the "leaning stone" showing its inclination and its position relative to the "blue stone" monolith - 39
Fig. 3. Registering frame and vertical rod - - - 41
Fig. 4. The registering frame in position around Excavation VI. - - - - - - - 42
Fig. 5. The "leaning stone" with the cradle and cables attached - - - - - - - 43
Fig. 6. The "leaning stone" set upright - - - 44
Fig. 7. Plan of the excavations around the stone - - 46
Fig. 8. Excavation I. Sections - - - - 48
Fig. 9. Excavation II. Section through the middle - - 49
Fig. 10. Excavation III. Sections - - - - 50
Fig. 11. South-west side of the underground portion of the stone - - - - - - - 51
Fig. 12. Excavation Q. Section, south-east side - - 52
Fig. 13. Excavation V. Transverse section - - - 54
Fig. 14. Flint Implements found in the Excavations - 58
Fig. 15. Flint Implements found in the Excavations - 59
Fig. 16. Flint Implements found in the Excavations - 60
Fig. 17. Flint Implements found in the Excavations - 61
Fig. 18. Flint Implements of similar forms to those found at Stonehenge - - - - - - 63
Fig. 19. Flint Implements of similar forms to those found at Stonehenge - - - - - - 64
Fig. 20. Stone Implements found in the Excavations - 66
Fig. 21. Stone Implements found in the Excavations - 68

PLATE		PAGE
	Fig. 22. Stone Implements found in the Excavations	69
	Fig. 23. Heavy maul as used in Japan	70
	Fig. 24. Deer's horn pick found at Stonehenge	71
	Fig. 25. Transport of a colossus. Egypt	74
V.	Transport of a huge block of stone. From a Japanese drawing - facing	74
	Fig. 26. Line of holes cut across a corner of the so-called "slaughter stone," No. 95	76
	Fig. 27. Fallen stone showing grooves formed in dressing the surface	77
	Fig. 28. Tooled surface of the stone	79
VI.	Sun-Worship in Japan. From a Japanese print - facing	88
	Fig. 29 Excavation VI.	101
VII.	General Plan of Stonehenge, 1902 - facing	118
VIII.	Caerwent.—Plan of Houses II., VII., and VIII. - facing	122
	Fig. 1. House No. 2, Room 1, Masonry of east wall of corridor	124
	Fig. 2. Hypocaust in House No. 2, Room 14	126
	Fig. 3. Bronze plaque found in House No. 2	128
	Fig. 4. Furnace in House No. 2, Room 45	136
	Fig. 5. Furnace (e) in House No. 1	137
IX.	Caerwent.—Sections of Houses II. and VII. - facing	138
X.	Caerwent.—Mosaic pavement in House No. VII., Room 6 facing	140
XI.	Caerwent.—The lower pavement, Room 7, House No. VII. facing	141
XII.	Caerwent.—Paintings on north wall of House No. 7 - facing	142
	Fig. 6. Remains of supposed shrine in House No. 8	149
	Fig. 7. Sandstone head found on site of supposed shrine in House No. 8	150
	Fig. 8. Plan of Caerwent, showing discoveries down to November, 1901	152
	Fig. 1. Signet of King Charles II.	157
	Fig. 2. Signet of James Duke of York	157
	Fig. 1. Church of St. Michael Wood Street, London	191

PLATE PAGE

Fig. 2. Church of St. Michael Wood Street, London, with tower as finished by Wren - - - - - - 192
Fig. 3. Churches of St. Michael Wood Street and St. Mary Staining. From Agas's Plan of London - - - 197
Fig. 4. Church of St. Michael Wood Street, London - - 198
XIII. Tower arches of the destroyed church of St. Michael Wood Street, London - - - - - - facing 199
Fig. 5. Church of St. Michael Wood Street, London. Doorway to turret staircase - - - - - - 199
Fig. 6. Moulded stonework from the church of St. Michael Wood Street, London - - - - - - 200
Fig. 7. Plan of the church of St. Michael Wood Street, London - - - - - - - - 201
Fig. 8. Church of St. Michael Bassishaw, London - - 204
XIV. Saracenic Goblet of enamelled glass in the British Museum facing 217
Fig. 1. Section of Saracenic goblet of enamelled glass - 218
Fig. 2. Enamelled glass goblet in the British Museum - 221
Fig. 3. Section of ditto - - - - - - 221
Fig. 4. Enamelled glass goblet formerly in the possession of Mr. Adrian Hope, now in the British Museum - - 223
Fig. 5. Section of ditto - - - - - - 224
Fig. 6. Enamelled glass beaker in the British Museum - 225
Fig. 7. Section of ditto - - - - - - 225
XV. Seals from Charters of the Manor of Ropley, Hants - facing 229
XVI. Inlaid Gold Ornaments in the British Museum - facing 237
Fig. 1. Inlaid gold *uraei* from Dashur - - - 238
Fig. 1a. Inlaid "soul" from Dashur, in the possession of F. G. Hilton-Price, Esq. - - - - - - 238
Fig. 2. Section of the Crown of the Visigothic King Svinthila 241
Fig. 3. Openwork vessels from Petrossa - - - 242
Fig. 4. Scene representing a mythological combat at Persepolis - - - - - - - - 245
Fig. 5. Ivory carving from a throne, formerly gilt and inlaid with lapis lazuli, from Nimrûd - - - - 246
Fig. 6. Inlaid figure of a beetle, from Nimrûd - - 247

PLATE PAGE

Fig. 7. Ivory sheath inlaid with amber, from Veii - - 248
Fig. 8. Ivory sword hilt inlaid with amber, from Hallstadt - 248
Fig. 9. Back view of gryphon on gold armlet from the Oxus 250
Fig. 10. Gold plaque from the Oxus treasure, representing a lion-headed gryphon - - - - - 254
Fig. 11. Gold plaque from Siberia, in the Museum of the Hermitage, St. Petersburg - - - - 255
Fig. 12. Deer from the top of the gold crown from Novotcherkask, in the Museum of the Hermitage, St. Petersburg 256
Fig. 13. Top of a hookah inlaid with turquoises from Yarkand - - - - - - - - 257
Fig. 14. Sculpture from Gandhâra in the British Museum - 263
Fig. 15. Detail from the sculptures of Bharhût - - 264
Fig. 16. Gold girdle-ornament of Sassanian work inlaid with garnets - - - - - - - 266
Fig. 17. Inlaid gold ornament from Petrossa - - 268
Fig. 18. Gold gorget from Petrossa - - - - 269
Fig. 19. Section of an inlaid gold cover for a book of the Gospels, presented by Theodelinda, Queen of the Lombards, to the cathedral church of Monza - - - 271
Fig. 20. Section of a Byzantine inlaid and enamelled cover of a book of the Gospels at Limburg-on-the-Lahn - - 272
XVII. St. Alban's abbey church.—Painted Decoration on Norman arches - - - - - - facing 277
XVIII. St. Alban's abbey church.—Paintings on the nave piers facing 282
XIX. St. Alban's abbey church.—Paintings on the nave piers facing 284
Fig. 1. Painting of St. Christopher in the nave of St. Alban's abbey church - - - - - - 287
XX. St. Alban's abbey church.—Wall Paintings in the transepts and chapel of St. Alban - - - - facing 289
Fig. 2. Vine pattern in north transept window of St. Alban's abbey church - - - - - - 290
XXI. Map of the old water-supply of the London Charterhouse [m. 1] between 296 & 297
XXII. Map of the old water-supply of the London Charterhouse [m. 2] between 304 & 305

PLATE PAGE

XXIII. Map of the old water-supply of the London Charterhouse [m. 3] between 306 & 307

XXIV. Map of the old water-supply of the London Charterhouse [m. 4] between 308 & 309

Fig. 1. Plan of Richard's Castle, from the Ordnance Survey - 318

Fig. 2. The building of Hastings Castle. From the Bayeux Tapestry - - - - - - - 323

Fig. 3. Plan of Pleshey Castle* - - - - 329

* The Society is indebted to Mr. J. C. Gould for the loan of this illustration.

ARCHAEOLOGIA:

OR,

MISCELLANEOUS TRACTS,

&c.

I.—*On some rare forms of Bronze Weapons and Implements.* *By the Rev.* WILLIAM GREENWELL, *D.C.L., F.R.S., F.S.A.*

Read 5th December, 1901.

SOME bronze weapons and implements, which have come into my possession, appear to be of so much interest in respect of novelty and peculiarities of form, manufacture, and ornamentation, as to make it desirable to bring them under the notice of the Society, with the object of placing them on permanent record in *Archaeologia*.

It is possible that by their publication additional light may be thrown upon them, and certain difficulties in connection with them, which now present themselves, may be removed.

It is not proposed in this account to enter upon any discussion with regard to the original source of the bronze cultivation, or of its development through the various lines by which it became spread over the wide area where it once, though at very different times, prevailed. Nor is it intended to make any comparison between the varied types which characterise bronze weapons and implements in the several districts where these types at one time existed. The object is to put in evidence and make available for study articles which may be useful to those engaged in researches in that branch of archæological science with which they are concerned.

DAGGER, POSSIBLY FROM HALLSTATT.

The dagger (fig. 1), about to be described formed lot 25 at the sale of the Forman Collection, by Messrs. Sotheby and Wilkinson, 19th June, 1899. Nothing is known as to the place where it was found or how Mr. Forman became possessed of it. It is, however, not improbable that it came from the cemetery at Hallstatt,

Fig. 1.
Dagger, possibly from Hallstatt.
(¼ linear.)

in the Salzkammergut, in Upper Austria, or from some place in that locality, for its general form and some peculiar features connected with it almost certainly point to that part of Europe for its origin.

It is of much value and interest in connection with a period, the time of the transition from bronze to iron, about which every additional piece of evidence is of importance.

It consists in the main of bronze, but contains also a portion of iron, which not only constitutes an integral part of its construction, but aids in its decoration. The length of the entire weapon is $10\frac{1}{4}$ inches, of which the blade comprises $5\frac{3}{4}$ inches. The handle, which is $4\frac{1}{2}$ inches long, terminates on the blade in the not uncommon semicircular form. The grip is made from a round bar of bronze which widens in diameter from $\frac{1}{2}$ inch at either end to $\frac{3}{4}$ inch at the middle, at which place it is encircled by three narrow rounded ribs, that at the middle being wider and higher than the other two, and having a very thin rib touching it on each side. At the top are two curved horns, each of which originally, no doubt, terminated in the head of an animal, probably a horse; one of them, however, is now wanting. Between the horns is a round pillar $\frac{1}{4}$ inch in diameter, which rises a little above the level of the horns. It swells slightly at the top and has six thin ribs upon it, the three intermediate ones being very delicate, the other three increasing in width from the bottom one upwards. At the base of the handle, where it widens and embraces the blade, are, upon one face, seven small circular holes, in two of which are the remains of some substance, probably coloured paste, which once filled all the seven. They no doubt represent, by way of survival in the shape of ornament, the heads of rivets, by means of which handles were usually fastened on to blades. The animal's head at the end of the complete horn has, at the place where the eye would be, a similar hole, once filled with the same material as that which filled the holes at the bottom of the handle. This hole, like the others, is placed on the side which may be supposed to have been the outside one when the dagger was worn in the belt. At the end of each side of the handle, where it is attached to the blade, is a small projection, which is somewhat similar to the head at the end of the horn. It also is probably meant for an animal's head, the eye being formed by the outer one at either end of the seven holes already mentioned.

On each face of the blade where it joins the handle is a plate of iron fastened on to the blade by two bronze rivets with round heads. The plates terminate in a semicircular form similar to that of the handle itself. They are prolonged upwards, and become united to form a tang, which, passing through the grip of

the handle and the pillar, most likely ended originally in a round knob, now decayed, which protected beyond the flat top of the pillar. The blade is now shorter and narrower than it once was, and shows evident signs of long continued use, having probably served for a knife as well as for a dagger, in which service it has been whetted down in a not very workmanlike way to its present form.

The dagger undoubtedly belongs to a time when a knowledge of iron had lately spread into the country where it was made, whatever locally that time may have been. The use of iron in the plates on the blade must, to some extent at least, be considered as a decorative one, though they further served a useful purpose in strengthening the fastening of the handle to the blade. The manner in which the iron occurs as an ornamental part of the dagger appears to point to the scarceness of that metal when the weapon was made. It was probably not long before the time when bronze handles, of both daggers and swords, were attached to blades of iron, those being in each case of much the same form as that of the older bronze blades. The cemetery at Hallstatt, so prolific in articles associated with the dead, has produced many examples of such weapons. In several instances, especially in the case of one,[a] the handles of the daggers found at that place are, in their general form, and to some extent even in minute particulars, very similar to that of the dagger under notice.

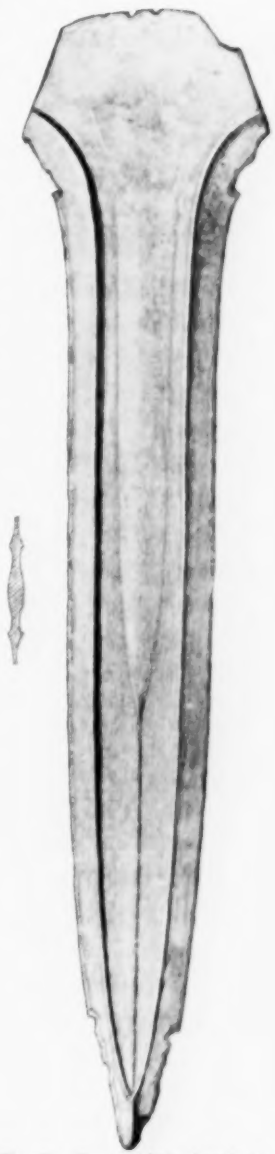


Fig. 2. Bronze blade found at Kimberley. (¼ linear.)

KIMBERLEY, NORFOLK.

The blade (fig. 2), about to be described, was found at Kimberley, in Norfolk. It is $13\frac{3}{8}$ inches long, 3 inches wide at the broadest part of the handle plate, and

[a] Von Sacken, *Das Grabfeld von Hallstatt*, p. 32, pl. v. fig. 14. A dagger with a bronze handle and iron blade, in every way very like that above described, which was found somewhere in Bavaria, is preserved in the National Museum at Munich. Lindenschmit, *Alterthümer*, vol. ii. part 2, pl. iv. fig. 6.

narrows to 2 inches at the upper end of the same plate, which is slightly curved. There are no holes for rivets nor is there any other provision for attaching the handle. A very shallow slightly rounded midrib, which begins $2\frac{1}{4}$ inches from the end of the handle plate, where it is $\frac{7}{8}$ inch wide, extends down each face of the blade, gradually tapering for a length of $6\frac{1}{2}$ inches. It then becomes a very narrow rib, which is prolonged, for a length of 4 inches, to a point where two side ribs, to be presently noticed, unite. These ribs commence just above the widest part of the handle plate, and are carried along each side of the blade parallel to the edge, at a distance of $\frac{3}{8}$ inch from it. After a course of $11\frac{1}{2}$ inches they join and form a single rib which terminates at the point of the weapon. On each edge at the top of the blade is a notch, $\frac{3}{4}$ inch long. This feature, which is common to many sword blades, and which in some cases has the edge serrated, has never been satisfactorily explained.

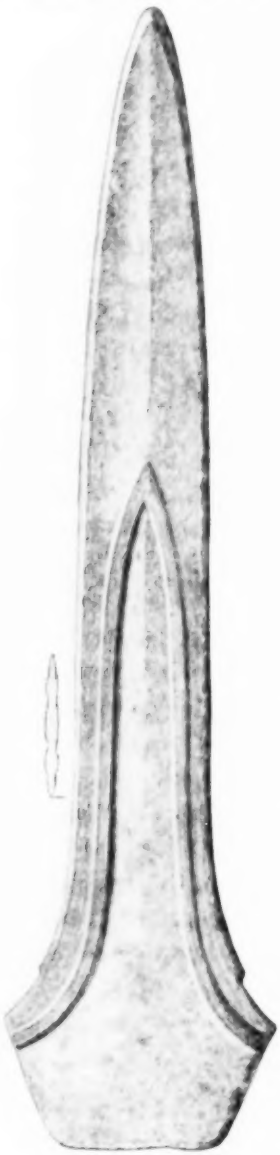


Fig. 3. Bronze blade found near Beaune. ($\frac{1}{4}$ linear.)

The blade, which is of a size and shape more adapted for the purposes of a halbert than of a dagger, is of a very unusual type, nor am I acquainted with the occurrence of one at all like it in the United Kingdom. It will be seen in the account of the weapon next to be noticed that similarly shaped blades, and very much like the Kimberley one in other respects, have been found in France, though very rarely.

BEAUNE, FRANCE.

The very massive blade (fig. 3) now under notice was found near Beaune, in the Department of Côte d'Or, France. It is $26\frac{3}{4}$ inches long, $6\frac{1}{2}$ inches wide at the broadest part of the handle plate, narrowing to a width of 4 inches at the top of the plate, which is straight. It has notches, $1\frac{1}{2}$ inch long, similar to those on the Kimberley blade. A shallow convex midrib, 1 inch wide where it is first distinguishable, tapers gradually from an uncertain point on each face of the blade to a sharp end, at a distance of $15\frac{3}{8}$ inches from the top of the handle plate. A flat rib,

$\frac{1}{4}$ inch wide, which begins $\frac{3}{4}$ inch above the broadest part of the handle plate, is carried along at a distance of $\frac{3}{4}$ inch from each bevelled edge of the blade, to which it is parallel, for a length of $14\frac{1}{2}$ inches, where the two ribs unite and are prolonged in a narrow rounded rib to the end of the blade. The point of the midrib is conterminous with the junction of the flat side ribs. Like the Kimberley blade there are no rivet holes.[a]

This very remarkable weapon can scarcely have been used in any other way than as a slashing instrument fixed at the end of a long handle. It is essentially a similar blade to that from Kimberley, from which it only differs in size. Indeed so like are the two that they might well have both been made in the same workshop.

COLOPHON, IONIA.

The knife was found, associated with the silver pin and glass pendent ornament to be presently described, in a grave, surrounded by large stones, at the foot of a hill near to the site of Colophon, in Ionia.

It measures $13\frac{1}{8}$ inches in length, of which the handle, including the tang, occupies $4\frac{3}{8}$ inches; the width is $\frac{3}{4}$ inch. It is strongly made, in form slightly curved, and thickens at the back to $\frac{3}{8}$ inch. It has a very narrow rib on each face, running the whole length of the blade, and parallel to it at a distance of $\frac{1}{4}$ inch from the back, which has a similar delicate rib on each side. The handle consists of a continuation of the blade in the shape of a flat plate of bronze, the edges of which are turned over to embrace the two pieces of ivory, which, with the enclosing bronze, constitute the handle. Two thin ribs, one on each side, are carried along the upper and lower edge of the handle, the upper ribs being a continuation of the ribbed edges of the back of the blade, the lower corresponding in position and size with the upper. The end of the handle plate is prolonged in a tang $\frac{7}{8}$ inch long, upon which there was once fixed a knob of ivory or some other material which has perished or been lost.

Fig. 4. Bronze knife found near Colophon. (¼ linear.)

[a] A blade very similar, but without the notches at the top, 26 inches long, was found at Plougescant, Côtes du Nord, France. Mortillet, *Musée Préhistorique*, pl. lxix. No. 707.

The pin (fig. 5) is $8\frac{3}{8}$ inches long, strongly made, and has an eye, rounded at the top and pointed at the bottom, at the upper end. The eye, which is $1\frac{3}{8}$ inch long and $\frac{1}{2}$ inch wide, has been formed by turning back the flattened and ridged upper part of the round bar, out of which the pin was made, upon itself, the end being fastened by hammering the thin edges of the flattened part over upon the round bar, which constitutes the body of the pin.

Fig. 5. Silver pin found near Colophon. (½ linear.)

The glass pendant (fig. 6), of which only two pieces are left, was probably rectangular in shape, and was suspended by a ribbed loop. It is made of semi-opaque glass, which has been cast in a mould, and is of a pale bluish colour. The pattern upon it is formed by spirals of two coils, which terminate in conical knobs, the spirals being separated by lines of dots, of which four remain.[a] A number of more or less similar articles of glass are preserved in the British Museum among various objects found in tombs at Ialysos, in the island of Rhodes, where there is also a knife in all respects precisely like that from Colophon, given by Mr. Ruskin.[b]

Fig. 6. Face of a glass pendant found near Colophon. (½).

NAXOS, GREECE.

The knife (fig. 7) was found in the island of Naxos, but under what circumstances I am ignorant, though probably in a tomb. It is made of bronze, $9\frac{3}{4}$ inches long, of which the handle takes up $3\frac{1}{4}$ inches, and is $\frac{7}{8}$ inch wide. The blade, which is two-edged, has a broad rib down the middle, with a smaller one on each side of it. The handle plate, which widens and is turned

Fig. 7. Bronze knife found in the Island of Naxos. (½ linear.)

[a] A pendant from Palamidi, which has much in common with this, is figured in Perrot and Chipiez, *La Grèce primitive*, p. 944, fig. 504. Glass ornaments of the same kind have occurred, as stated above, at Ialysos and also at Mykenæ and Spata. *Confer* Furtwängler and Loeschcke, *Mykenische Vasen*, pl. c. No. 11; Dumont, *Les Céramiques de la Grèce propre*, pl. iii. fig. 16.

[b] A knife like those from Colophon and Ialysos was found by M. Tsoundas in a chambered tomb at Vaphio. Perrot and Chipiez, *l. c.* p. 977, fig. 552.

outwards at the end, curves over on each side to enclose the ivory plates, which, together with the bronze, form a round handle $\frac{1}{2}$ inch in diameter. The ivory, which is broken away where it joined the blade, has been fastened there on to the handle plate by a bronze rivet, which still remains. It is probable that another rivet occupied a similar position at the top of the handle, but a portion both of the bronze and ivory has been broken off at the place.

NAUPLIA, GREECE.

The knife (fig. 8) was found near Nauplia, but whether alone or associated with other articles is unknown. It is made entirely of bronze, and is $9\frac{1}{2}$ inches long, of which the handle occupies $3\frac{1}{4}$ inches; the width of the blade at the broadest part is $1\frac{3}{8}$ inch. It is one-edged, of a slightly curved and not uncommon form. The handle is of a very peculiar shape, and is ornamented after an unusual fashion. At the upper end is a hole by which to suspend it. On each edge of the handle are three depressions, so arranged as to allow it to be held conveniently in the right hand, either by the three first fingers being placed in the hollows on the upper edge with the thumb in the hollow next the blade in the under edge, or *vice versâ*, by placing the three fingers in the lower hollows and the thumb in the hollow next the blade in the upper edge, the little finger in each case closing upon the end. It appears to be a development of an earlier implement, where a flat metal tang had been covered with wood, bone, or ivory, fastened on by rivets with rounded heads. The handle terminates on the blade with a raised rib, a survival of the end of the wooden or bone plate of the earlier one. Each face of the handle is ornamented with two curved parallel ribs in relief, which follow the outline of the edge. The handle is further enriched by twelve knobs, in four sets of three each, and by a single one in the corner where the back of the handle joins the blade. These knobs are no doubt survivals, as ornamental appliances, of the rivet heads by which in the earlier implement the wood or bone was fastened on to the bronze handle plate.

Fig. 8. Bronze knife found near Nauplia. (½ linear.)

This knife appears to be of a quite novel type, both in the form of the handle and its decoration. Knives with metal handles are not uncommon, but one similar to this does not seem to have occurred before.

EGYPT.

The knife (fig. 9) was found in Egypt. It is $10\frac{3}{4}$ inches long, of which the handle takes up 4 inches, and $1\frac{1}{4}$ inch wide at the broadest part. The blade is curved, the rounded point being turned upwards. The handle, fashioned in the shape of the leg of a gazelle or some other of the antelope group, is fastened to the blade by a single rivet, placed close to where it joins the blade. The modelling of the handle is good, the divided hoof and other features are carefully rendered, the whole forming a graceful addition to the implement. It is not possible to assign any date to its manufacture, but it probably does not belong to an early time. Bronze and iron were used contemporaneously in Egypt, and if that country had, like most parts of the world where there was a bronze cultivation, a time when iron was unknown, that period has not hitherto been identified. It is possible, indeed, that the two metals were introduced there together, where before stone only was in use for weapons and implements.

Fig. 9. Bronze knife found in Egypt. ($\frac{1}{4}$ linear.)

VAN, ARMENIA.

The axe (fig. 10) was bought at Van, in Armenia, and is said to have been found in the neighbourhood. It consists of a blade which expands towards the cutting edge, with a socketed handle at the other end, placed at an acute angle to the blade. It is $5\frac{3}{8}$ inches long, of which the blade occupies 3 inches, the width at the edge being above 2 inches. The round socket for the handle, which is $3\frac{1}{4}$ inches long and $\frac{7}{8}$ inch wide, is a complete round for only about half its length, the remaining part, the upper one, being only a half round, which narrows to a blunt point at the end. The socket is ornamented at each extremity with two narrow raised ribs, which surround the openings close to the edge. A

crouching lion is seated on the socket; the mouth is open, and the tail, which is stretched out and curled round at the end, extends almost to the pointed termination of the socket. On each side of the lion is a dog, which springs up towards his head in the act of attacking him.

Fig. 10. Bronze axe-head from Van, in Armenia. (¼ linear.)

The upper part of the blade on each face, for a space of ¾ inch in depth, is ornamented by a pattern consisting of a series of chevrons set on edge, close and parallel to each other, placed within an enclosing line on each side. There is a similar band of chevrons beneath; the two bands of chevrons having between them a zigzag of two lines, with parallel horizontal crossing lines within. Beyond the second band of chevrons and depending from the lower enclosing line are three shallow loops of double lines. The work is rather roughly executed, and appears to have been done by punching with a chisel.

The handle is an excellent piece of casting, and the modelling of the lion is good; that of the dogs being somewhat inferior.

An axe, similar in many respects to that from Van, is preserved in the British Museum, and came from Hamadan (Ecbatana), in Persia (fig. 11). The

Fig. 11. Bronze axe-head from Hamadan, Persia. (¼ linear.)

blade in both axes is of the same form, but there is no ornamentation upon that from Persia, in which, however, a lion forms a component part of the handle. In the Hamadan axe the socket is formed by the animal itself, the hole for the handle passing through the mouth and forepart of the body of the lion. In consequence of this arrangement there was no opportunity for the introduction of the dogs.

There is so much similarity in the shape, manufacture, and artistic treatment of the two axes that they may be considered to have had a common origin, or at least to have been products of the same cultivation and to have been made about the same time.

An axe which to some extent falls into the same series, though it is probably later in date, was found at Khinaman, near Kerman, in the south-east of Persia, on the borders of Baluchistan (fig. 12). It was associated with a grave-burial in a cemetery, where the bodies, which had gone entirely to decay, were accompanied in some instances by heads of javelins, thin oval-shaped knives or razors, plain penannular armlets, and pins ornamented at the head, all of bronze; in each grave there was a small vessel of pottery, and in some a bowl of thin hammered bronze.[a] The axe has two wings and is perforated by a hole for the handle, which passes obliquely through at a point about the middle of the length of the blade. In consequence of the oblique feature in the hole for the handle and its small size, as well as from the form of the blade itself, the axe cannot be regarded as having been made for either a warlike or domestic purpose, but was most probably representative and intended for a ceremonial use. The edge of one wing is sharp, that of the other blunt. The whole length is 7 inches, the width of the blunt edge $3\frac{1}{2}$ inches, that of the sharp one $1\frac{1}{2}$ inch. The inner part of the hole for the handle is barely $\frac{1}{2}$ inch wide, the opening at the one end, where the lion's mouth is placed, is $\frac{5}{8}$ inch by $\frac{3}{8}$ inch, that at the other end being $1\frac{5}{8}$ inch by $\frac{1}{2}$ inch. The ornamentation, which is unusual, is the same on each face, and is confined to the edge of the blunt end and to the openings of the hole for the handle. That on the end consists of two bands, the outer one, $\frac{1}{4}$ inch wide, and which is close

Fig. 12. Bronze axe-head from Khinaman. ($\frac{1}{4}$ linear.)

[a] See "A Fourth Journey in Persia, 1897-1901," by Major P. Molesworth Sykes, in *The Geographical Journal*, xix. 167, where there is an engraving of the axe and one of that from Van, shown in fig. 10.

to the edge, is formed by a wavy line in relief; the inner band, which is about half the width of the other, having a similar, but not such a well defined wavy line. The one opening of the hole for the handle (it is doubtful whether it is the upper or the lower one) represents the gaping mouth of a lion, and has a wavy line, like the inner one at the blunt end, running round it. The other opening, which is pear-shaped, has a similar wavy line round it. Behind the lion's mouth is an object in relief, in shape like a grain of wheat, $\frac{7}{8}$ inch long and $\frac{3}{8}$ inch wide, which is probably meant for the ear of the lion, though it is large in proportion to the mouth. Though the lion itself is not present on this axe, the mouth of the animal is there and also connected with the handle. The three axes are thus brought together by an important element in the scheme of their design, which not unnaturally perhaps suggests a common influence in their manufacture.

So far as I know, neither in that part of the world from which these axes come, nor elsewhere, has any weapon or implement precisely like them been discovered.

Axes somewhat similar in form, which may perhaps be considered as miniature ones, have been found in the cemetery at Hallstatt. They have upon the handle, which is at a right angle to the blade, a figure of a horse, in one case having a rider upon it.[a]

Instruments to some extent similar, but very different in fabric and workmanship, have occurred in Siberia, as for instance in the case of a pick from Minoussink, in Western Siberia, on the handle of which are two goats or ibex.[b] Other implements, a pick and an axe, from the same district, have portions of animals upon them.[c] These implements may possibly be semi-barbarous imitations of better work which reached Siberia from a country further south. Our present knowledge, however, of the bronze cultivation of those parts of Asia is too inadequate to admit of any opinion at all satisfactory being arrived at.

In the country of which M. Ernest Chantre treats in *La Caucase*, one closely associated with Armenia and Persia, though many bronze axes have been met with, to some extent similar to those under notice, none has any animal form upon it or is in other ways at all appreciably like the Van and Persian axes.

[a] Von Sacken, *Das Grabfeld von Hallstatt*, p. 41, pl. viii. figs. 2, 3, 4.

[b] J. R. Aspelin, *Sur l'age du Bronze Altaico Ournalien.* Proceedings of the Congrès International D'Anthropologie of the Stockholm Meeting, i. 570, fig. 24.

[c] Aspelin, *l.c.* p. 571, figs. 29, 31.

The character of the two decorative systems on the Van axe are very dissimilar, nor would it have been expected to find upon the same instrument a well-modelled and executed animal in relief in juxtaposition with a somewhat rudely-made and formal pattern of punched lines. It is possible to suppose that the linear design, one common to a bronze cultivation which is found spread over countries widely separated, may be of native origin, while the art which produced the lion may have been brought into that part of Asia through the influence of a foreign and higher civilisation. This may have passed through Northern Syria and Mesopotamia from a still more southern source. There is some resemblance between the treatment of the lion upon the axe and that of the Assyrian weights of lion-form found by Sir Austen Layard at Nimrûd, now in the British Museum, upon one of which is the name of Shalmeneser the Fourth, whose date is approximately B.C. 727-722.

KERTCH, BLACK SEA.

The axe (fig. 13) was found near Kertch (Panticapaeum), on the Black Sea. It is flat, with very slight flanges on the upper part of the blade, which commence where there is a projection on each side. The axe is $5\frac{5}{8}$ inches long, $1\frac{5}{8}$ inch wide at the end of the handle, $2\frac{3}{4}$ inches across from point to point of the projections, and $1\frac{7}{8}$ inch wide at the cutting edge. It is ornamented on each face with the same design. At the top of the blade, placed midway between the two projections, is a circle formed of two concentric lines, enclosing a similar line of dots. The space included within the innermost line of the circle is filled with four series of three curved parallel lines, arranged so as to form a cross-shaped object. At the base of each projection is a series of parallel lines, varying in number from three to six, which curve outwards from the base of the projection towards the circle at the middle of the blade. Beneath the circle is the standing figure of an animal with curved horns. Though it does not possess much of the characteristic features of that animal, it is no doubt meant to represent a bull. The bull and all the work of the design, except the punched dots of the circle and a line of dots which follows the outline of the bull on the inner side, are made by engraved lines and not by chisel punching.

Fig. 13. Bronze axe found near Kertch. (½ linear.)

The projections, to which the name of wings may be given, are a marked feature of this early form of axe. Their object was no doubt to assist in fastening the axe more firmly in the handle, serving the same purpose as the loops so common in other and later forms of axes. This feature, by no means a frequent one, occurs oftener in Italy than elsewhere and is there applied to both flat and socketed axes.

As has already been stated, it is beyond the limits of the present account to enter upon any discussion about the introduction of bronze into Italy or any other part of the world, but perhaps it may be suggested that there were two distinct lines of transmission by which that metal spread from countries further to the north and east into Italy. The one along the course of the Mediterranean, the other from lands abutting upon the Danube, and so up the valley of that river over the Alps into the plain of Lombardy, to spread thence southward. The axe from Kertch affords one piece of evidence in favour of such a supposition, and though no argument can be based upon a solitary occurrence, nevertheless it has its value, and may be of use in the investigation of that very difficult, as it is one of the most enticing, of archæological questions, the original seat and later diffusion and development of the bronze cultivation.

BEYRÛT, SYRIA.

The two axes about to be described were found with two similar near to Beyrût. They differ in one important feature, the one of a broad type is long in

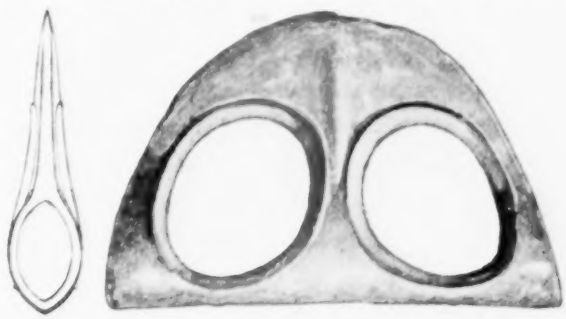


Fig. 14. Bronze axe found at Beyrût. (½ linear.)

proportion to its depth, the other, of a narrow type, is the reverse. I possess other two; one of which, of the broad type, was found near Sidon, and is of a

much lighter fabric than the Beyrût one, the other of the narrow type, very similar in every way to that here figured, was bought at Cairo, and was said to come from Echmîm. Other two, both of the broad type, were discovered in a cave near the village of Esh-Shajara, in Palestine.[a]

The broad axe (fig. 14) is $5\frac{3}{8}$ inches wide, $3\frac{3}{8}$ inches deep, with a socket at the top, 1 inch by $\frac{1}{2}$ inch, and has two eyes in the blade, 2 inches by $1\frac{5}{8}$ inch. It is strongly made, and has a narrow raised rib on each face, which extends from between the eyes down to the edge of the blade. The eyes have a raised rib with a bevelled edge round them. Some remains of the wood of the handle are left in the socket, and upon the oxidized surface of one face is the impression of some woven material, in which it had been wrapped or upon which it had been laid.

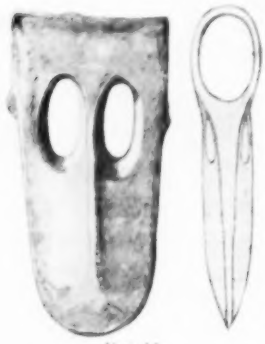


Fig. 15.
Bronze axe found at Beyrût.
(¼ linear.)

The narrow axe (fig. 15), which also is strongly made, has, like the other, a rib upon each face. It is $1\frac{1}{4}$ inch wide, $3\frac{7}{8}$ inches deep, the socket being 1 inch by $\frac{5}{8}$ inch, and the eyes $\frac{7}{8}$ inch by $\frac{3}{8}$ inch.

The type is peculiarly a Syrian one, seven out of the eight known to me having been found in that country, and the eighth, supposing it to have been found at Echmîm, may easily have been brought thither from Syria.[b]

The well-known Egyptian axe, which is of a form not very dissimilar, differs from the Syrian type in more than one particular. The two forms are nevertheless so much alike, that the one must be regarded as a development from the other, the Egyptian being most probably the prototype. With the exception of that said to have been found at Echmîm, I am not aware that any other axe of the Syrian type has occurred in Egypt.

UNCERTAIN LOCALITY.

The very remarkable axe (fig. 16) now under notice formed lot 21 at the sale of the Forman Collection by Messrs. Sotheby and Wilkinson, 19th June, 1899. A careful search through Mr. Forman's papers has failed to find any note of where it was found or from whom he got it.

[a] *Quarterly Statement of the Palestine Exploration Fund*, April, 1889, p. 77.

[b] An axe quite similar in form, but varying in the provision for handling, was discovered by M. Tsoundas in a chambered tomb at Vaphio, in Laconia. Perrot and Chipiez. *La Grèce primitive*, p. 978, fig. 553.

It is two-winged, with a provision for handling, placed midway between the edge of each wing. The edges, which are curved, are dissimilar, the one being sharp as if for use, the other having a blunt edge. The socket for the handle, which is very small and not quite round, measures $\frac{9}{16}$ inch by $\frac{7}{16}$ inch. It is closed at the top, through which a flat-headed rivet with a sharp point is passed, to run into the wood of the handle and to strengthen and make firm the hold. The metal, the surface of which is to some extent covered by an olive green oxide

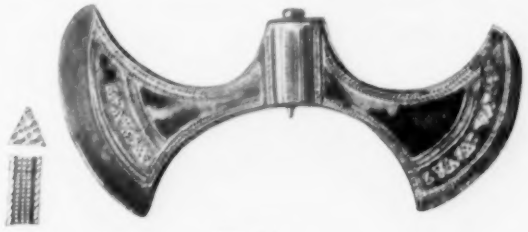


Fig. 16.

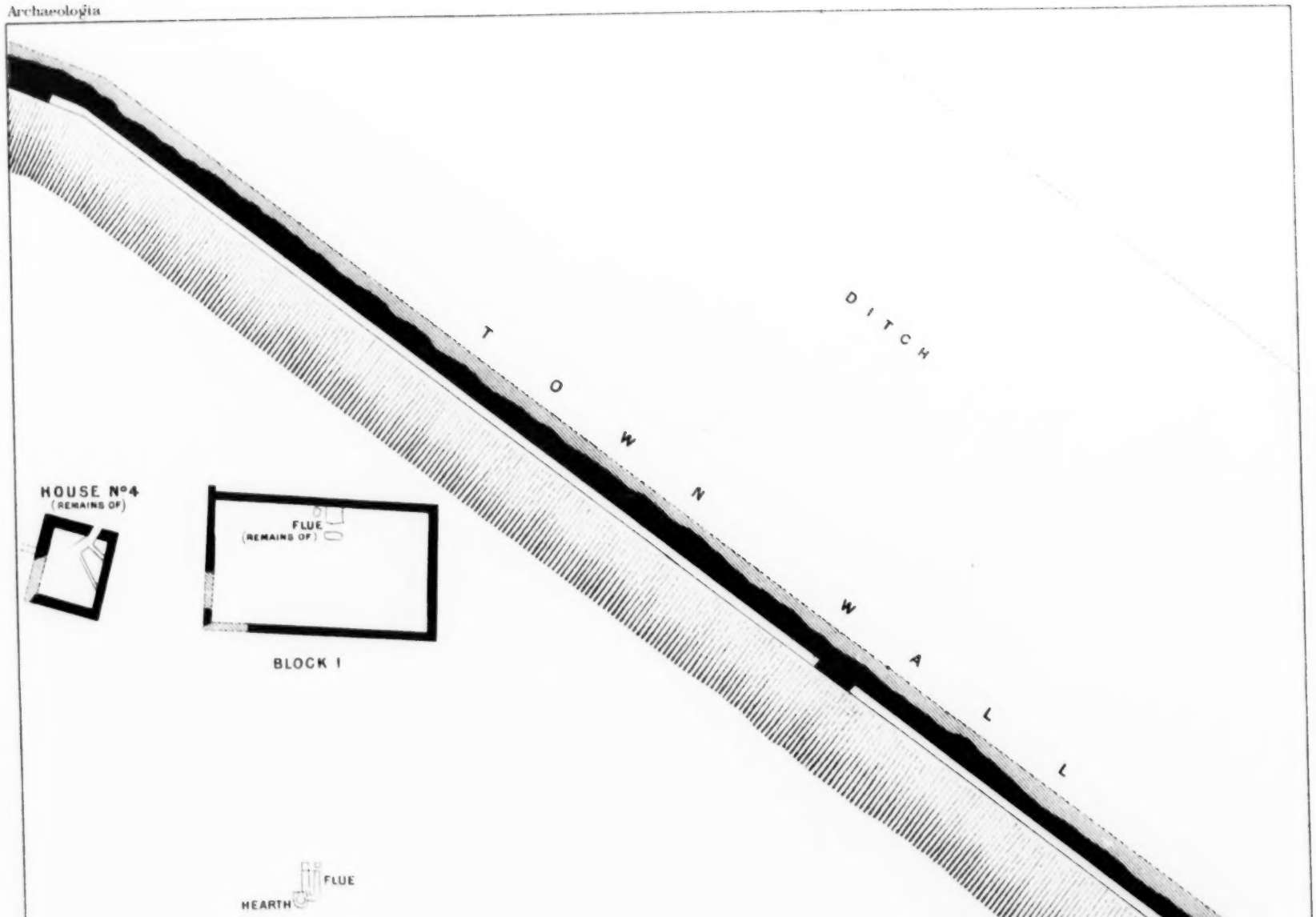
Bronze axe, locality unknown. (½ linear.)

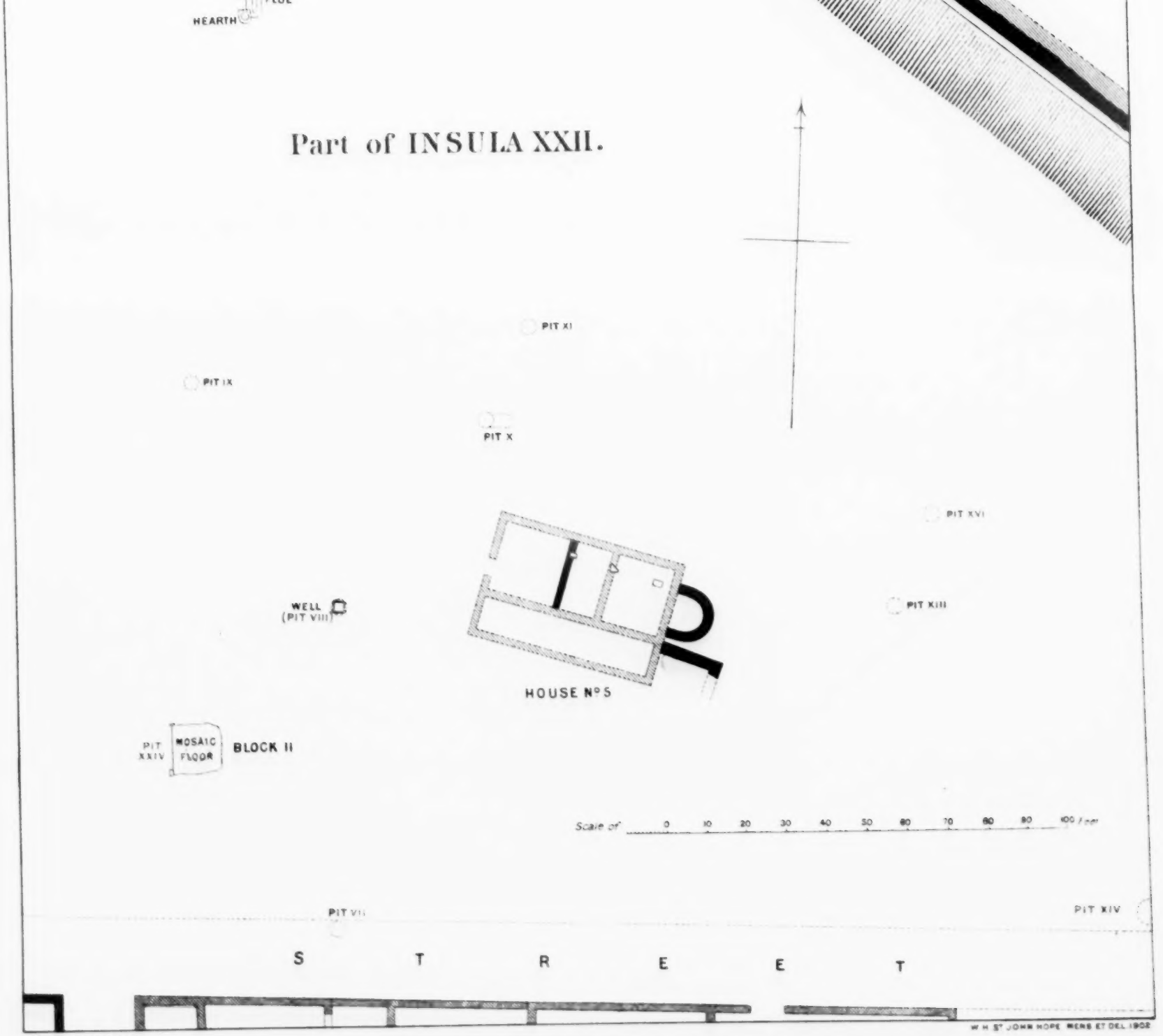
through which the colour of the metal shows, appears, judging from the colour, to have more tin in its composition than is usual in ordinary bronze weapons and implements. It is of very slight fabric and weighs only $4\frac{1}{10}$ ounces. The length from edge to edge is $5\frac{1}{2}$ inches, the width of the sharp end being $2\frac{1}{2}$ inches, that of the blunt one $2\frac{3}{8}$ inches, the socket is 1 inch deep. The axe is decorated over a large part of the surface including the socket, the design being the same on each face. All the details of the ornamentation, except the grooving on the socket, which appears to have been made in the casting, have been produced by punching, a die having been used in some cases. The decorative work is carried up to the edge on the blunt-ended wing, and to within $\frac{3}{8}$ inch from the sharp edge of the other wing. The pattern consists of a double-corded band in relief, which follows the outline of the axe, except on the socket and the edges of the wings. The edges have a band upon them which is parallel to their curve, consisting of triangular impressions placed in reversed positions each filled with a reticulated figure having three dots upon the lines of the net work, the whole being enclosed within two bands of square indentations, edged on each side by an incused corded line. The socket has two vertical corded lines at the middle with a plain line on each side, beyond which is a corded line between two plain ones.

The decoration, which is very skilfully applied and of an effective and pleasing character, is of an unusual nature, and, so far as I know, without a parallel in the ornamental work of articles of the bronze cultivation.

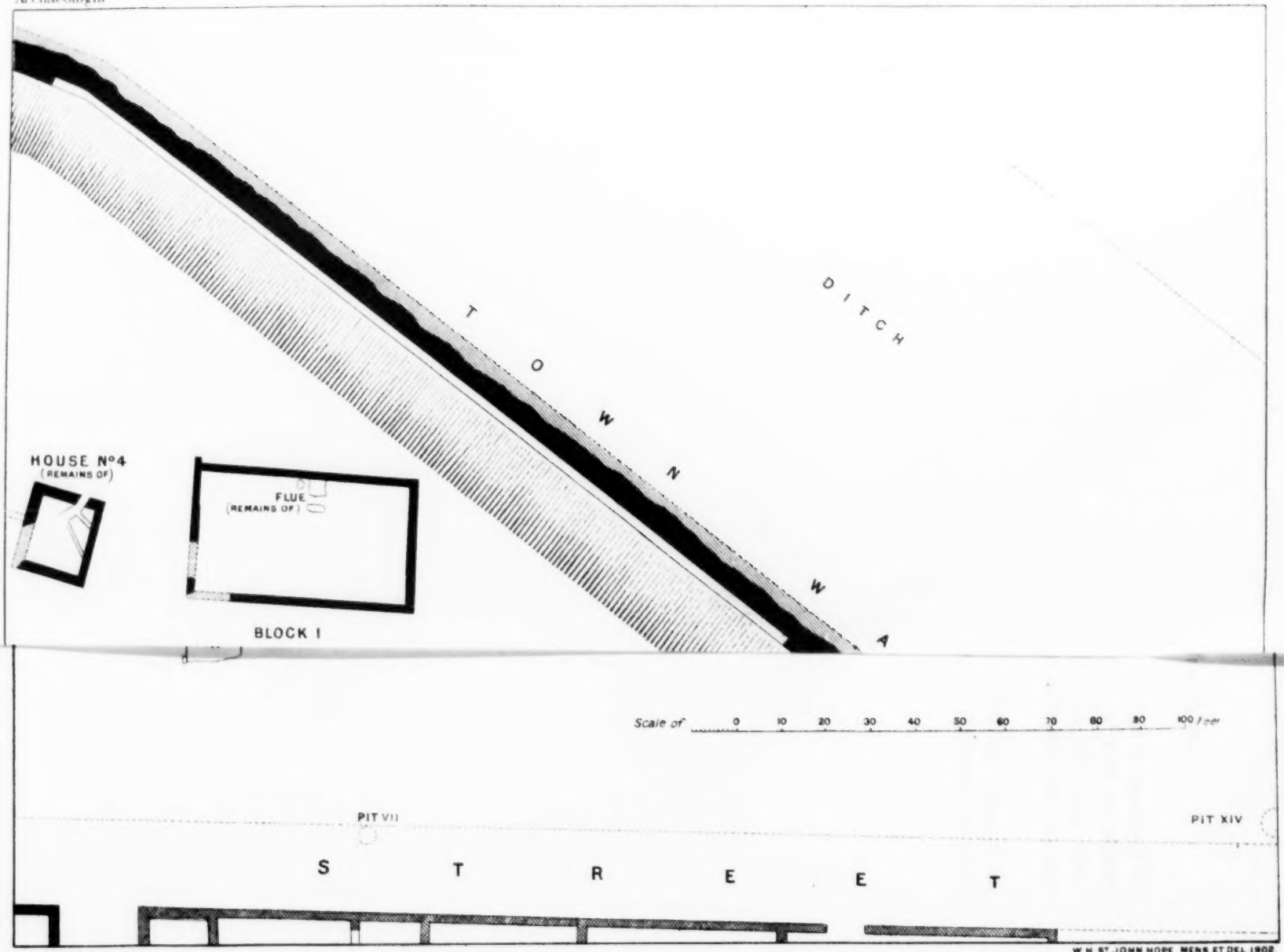
The instrument can scarcely have been intended to be used in any kind of work, its lightness and delicacy seem to preclude the idea of such an object, though the sharpness of one edge may be thought inconsistent with that view. It was probably intended for a ceremonial or official purpose rather than for any ordinary process of every-day life.

It is unfortunate that it has been found impossible to trace the place of its discovery or even the country from which it comes, nor can I make any probable suggestion with regard to its origin.


DITCH
TOWN WALL
HOUSE Nº4
(REMAINS OF)
FLUE
(REMAINS OF)
BLOCK I
HEARTH
FLUE



SILCHESTER — PLAN OF PART OF INSULA XXII



C.F. KELL & SON LITH.

W. H. St JOHN HOPE MENS ET DEL 1902.

SILCHESTER. — PLAN OF PART OF INSULA XXII.

Published by the Society of Antiquaries of London, 1902

II.—*Excavations on the site of the Roman city at Silchester, Hants, in* 1901. *By* W. H. St. John Hope, *Esq., M.A. With a note on the plant-remains of Roman Silchester. By* Clement Reid, *Esq., F.R.S.*

Read 29th May, 1902.

I have the honour of submitting to the Society, on behalf of the Executive Committee of the Silchester Excavation Fund, a full report of the discoveries made during the year 1901. This is also the record of the continued exploration of the site for the twelfth year in succession.

Work for the season was begun on 10th May by Mr. Mill Stephenson, who directed operations throughout until their conclusion on 13th November, with the exception of five weeks in July and August, when Mr. Herbert Jones was in charge. A deep debt of gratitude is due to these gentlemen for the time and trouble they have so freely bestowed upon the work.

The scene of the operations of 1901 was on the north of the modern road which traverses the town, and immediately to the east of *Insulæ* XXI. and XXII., excavated in 1899. The area examined was between 5 and 6 acres.

A large triangle which formed the northern half of the area dealt with proved to be a continuation eastward of *Insula* XXII., as was foreshadowed in our report for 1899 (Plate I.). It contained, however, only two other buildings. The one was a rectangular structure or enclosure (Block I.), 47 feet long and 26½ feet wide, standing east and west close to the town wall, a little to the east of the remains of House No. 4, and containing the wreck of a hearth or furnace against its north wall. The other building was perhaps a small house (House No. 5). It was situated towards the southern boundary of the *insula*, and consisted of a row, 44 feet long, of three chambers with a corridor along the south side, and an added apse at the east end. Another chamber had also been added on the south-east, but this had been completely destroyed with the exception of one wall. It would appear from a series of stone blocks inserted in the cross walls on the line of the

north wall of the apse produced that when the apse was added a narrow strip or aisle was partitioned off along the whole north side of the building. Three stones were found in place, while a bed for a fourth could be traced in the west wall, another stone was found lying loose, and yet another was met with near the bottom of a well (Pit VIII.) hard by. Several of the stones have dowel holes in them.

It is curious that three out of five houses in this *insula* should have had apsidal terminations.

The only other remains found in *Insula* XXII. were a long flue, with a hearth superposed, a little to the south of Block I., and a square patch of red mosaic flooring (Block II.) to the north-west of House No. 5. This must have belonged to some wooden structure, as no remains of walls or foundations could be traced round or near it.

The southern part of the area excavated in 1901 formed a large *insula*, XXVII., containing about $3\frac{2}{3}$ acres (Plate II.). It was separated from *Insula* XXII. on the north by an ill-defined street, and had other streets on its western and southern sides. On the eastern side were found decided traces of a street or lane, but of uncertain width, and not parallel with the street on the western side. The *insula* was not therefore square, its sides measuring respectively: N. 368 feet; S. 348 feet; E. 377 feet; W. 383 feet.

As will be seen from the plan the western half of *Insula* XXVII. is fairly covered by the foundations of three houses.

The northernmost, House No. 1, is one of the most interesting yet laid open in the town, not only from its plan and arrangements and ornamentation, but for the evidence deducible as to its construction, and the way in which it has been more than doubled in size by later additions.

It stood in the north-west corner of the *insula*, with one end abutting on the west street, but separated originally from the street on the north, to which it was not parallel, by an interval of from 30 to 37 feet.

It belongs to the courtyard type and consisted at first of two main ranges of chambers: a northern, extending eastwards from the street for 95 feet; and an eastern, at right angles to the other, and extending from its eastern end southwards for 65 feet and ending in an apse. Along the south side of the northern range was a corridor, returned southwards at each end, on the west to an entrance lobby on the street, on the east to a large winter room attached to the south end of the eastern range. The courtyard thus enclosed on three sides by the corridor faced south.

ty at Silchester, Hants, in 1901.

the apse was added a narrow strip or
th side of the building. Three stones
rth could be traced in the west wall,
yet another was met with near the
ver al of the stones have dowel holes

ouses in this *insula* should have had

XXII. were a long flue, with a hearth
., and a square patch of red mosaic
use No. 5. This must have belonged
walls or foundations could be traced

ated in 1901 formed a large *insula*,
II.). It was separated from *Insula*
and had other streets on its western
ere found decided traces of a street
allel with the street on the western
e, its sides measuring respectively:
83 feet.
tern half of *Insula* XXVII. is fairly

f the most interesting yet laid open
gements and ornamentation, but for
n, and the way in which it has been

Insula, with one end abutting on the
treet on the north, to which it was
eet.
isted at first of two main ranges of
om the street for 95 feet; and an
ending from its eastern end south-
Along the south side of the northern
ach end, on the west to an entrance
er room attached to the south end
losed on three sides by the corridor

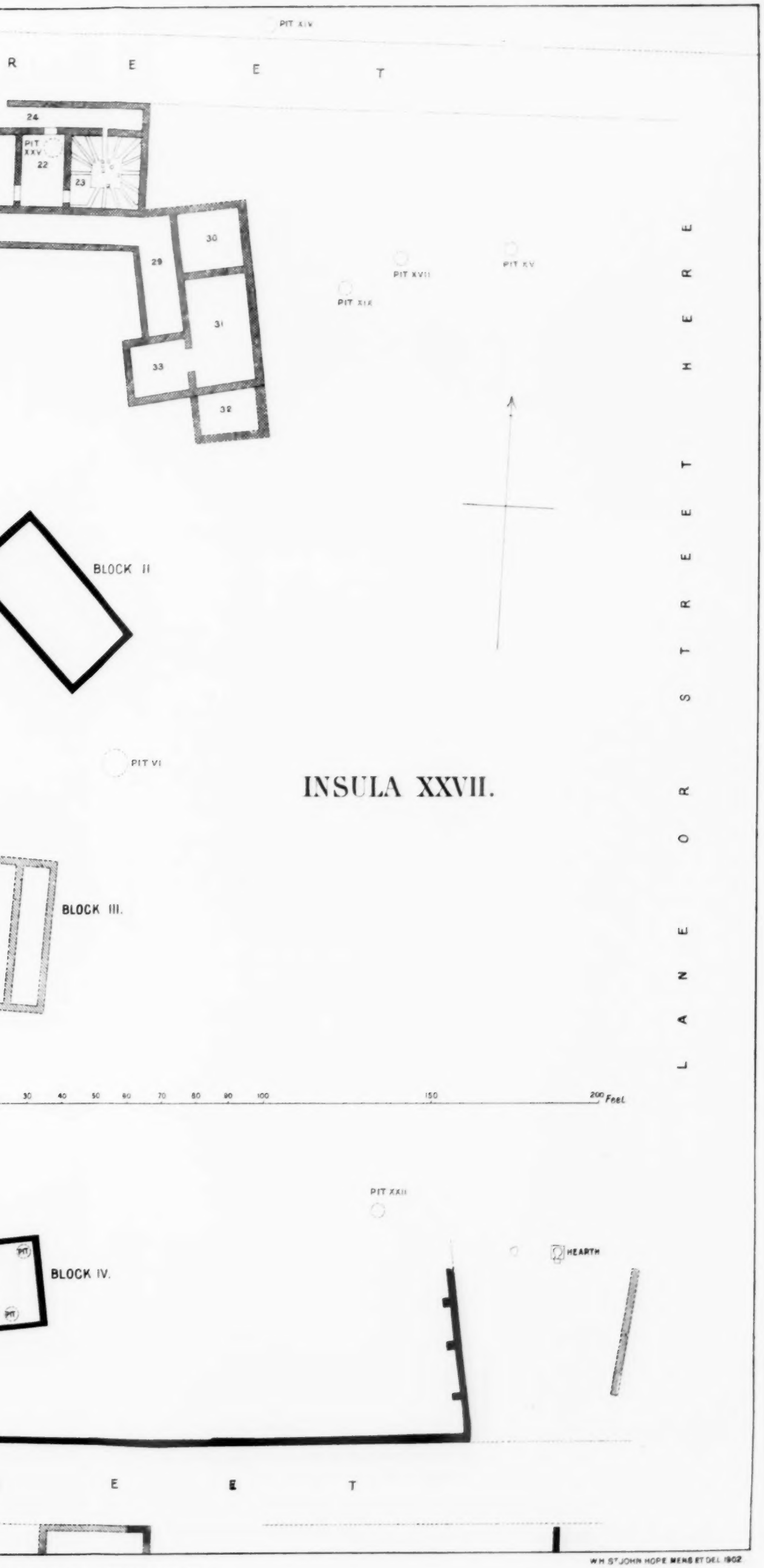
Archaeologia

C.F.MELLS & SON LITH.

SILCHESTER—

Published by the Soc

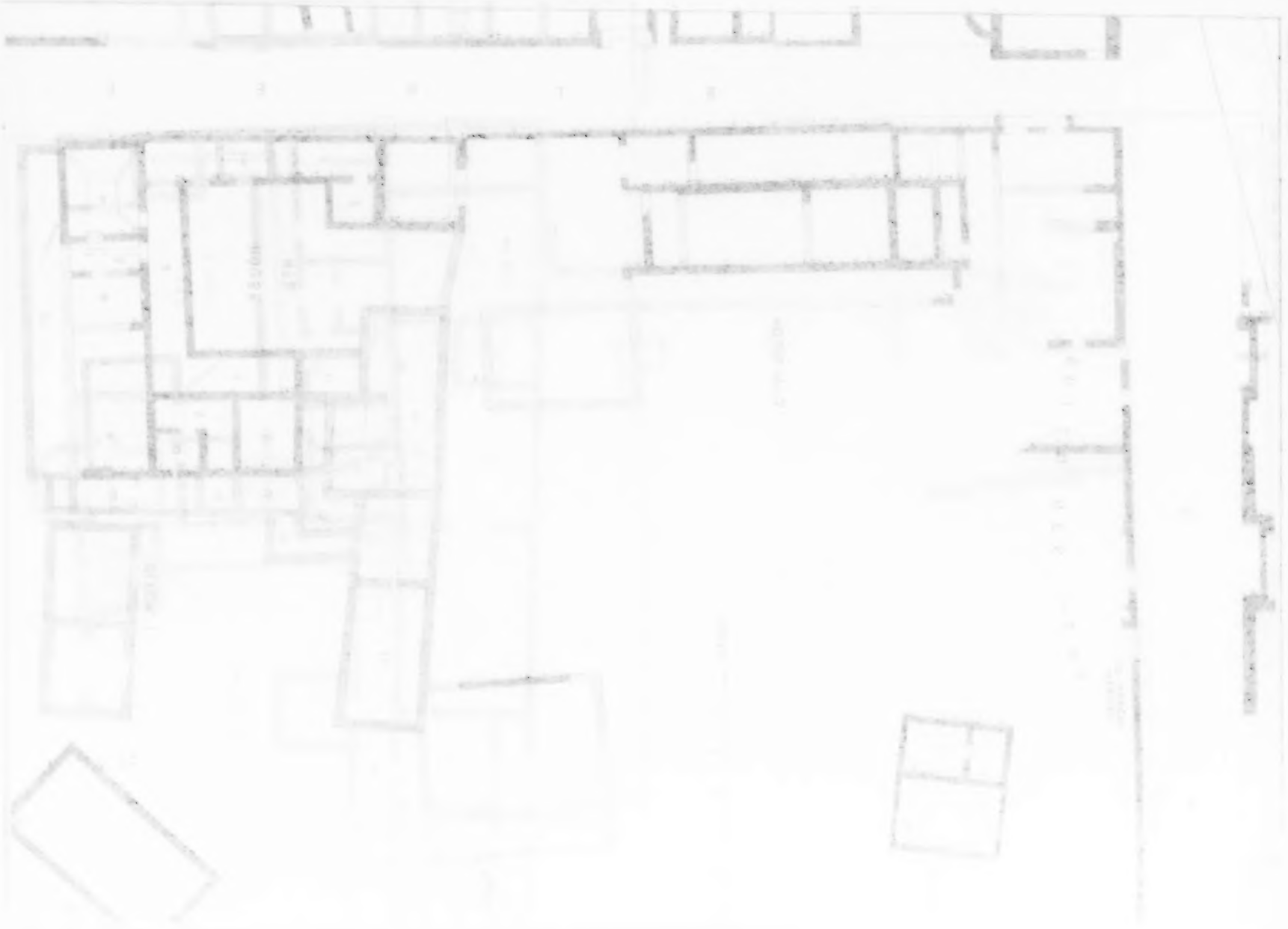
INSULA XXVII.



W.H. St JOHN HOPE MEMS ET DEL. 1902.

R—PLAN OF INSULA XXVII.

Society of Antiquaries of London 1912



The house was entered from the street by a lobby (1) 15½ feet square, paved with red tile mosaic and having in its north side a wide doorway into the west wing of the corridor (2). This was 10 feet broad and was paved with drab stone *tesseræ* with red borders and a thin line of red *tesseræ* forming a panel down the middle. The main portion of the corridor (3), which was only 8½ feet wide, was similarly paved. The east wing (4) was paved with the drab *tesseræ* alone, and was only 8 feet wide.

From the fragments of wall plaster found in the corridor, Mr. Fox suggests that the general arrangement of the colouring may have been a series of panels divided by broad vertical red bands, the panels being alternately white with painted draperies, and yellow. There may have been a dado in imitation of pink marble, and a frieze in white ornamented with green circles.

The first of the divisions of the northern range was a passage 6½ feet wide and 19 feet long (5), which also not improbably contained a staircase to an upper story. Nothing remained to show how it was paved. The next chamber eastwards (6) was of some size, and perhaps served as the kitchen. It had a doorway from the corridor, but nothing was found to show the character of its floor or how it was fitted up. Next to the kitchen was a small oblong room (7) paved with drab *tesseræ*. It had a doorway from the corridor, and another opposite opening into an inner room (8) with a cement floor. From each room a doorway led eastwards into the adjoining chamber (9). This had a third doorway in the south-west corner from the corridor, and was paved with drab mosaic; it had an unusually large quarter-round plaster skirting along the walls. Against the south wall was the brick base of a pedestal or altar, and in front of it a worn stone step. The next room (10, 11) was originally subdivided unequally by a cross wall into two smaller rooms, but was afterwards thrown into one and paved with drab stone *tesseræ*. It was entered by a doorway from the corridor on the south and had in its north wall a fireplace. But the most curious feature about the room was the deposit of bones and vessels of pottery under the floor in the angles and along the walls. The original outer room (10) had a pot embedded in the south-west corner, and deposits of bones in the two northern corners. The inner room (11) had along its eastern side a deposit of bones and three pots, and there were two other pots along the north wall to the left of the fireplace. The pots had their mouths flush with the floor and contained nothing but earth. Similar pots, but singly, have been found under like circumstances in other houses in the town, but never before has such a series been found. The deposits of bones were carefully removed by Mr. A. H. Lyell, and submitted to examination by Mr. E. T. Newton, who reports that all the

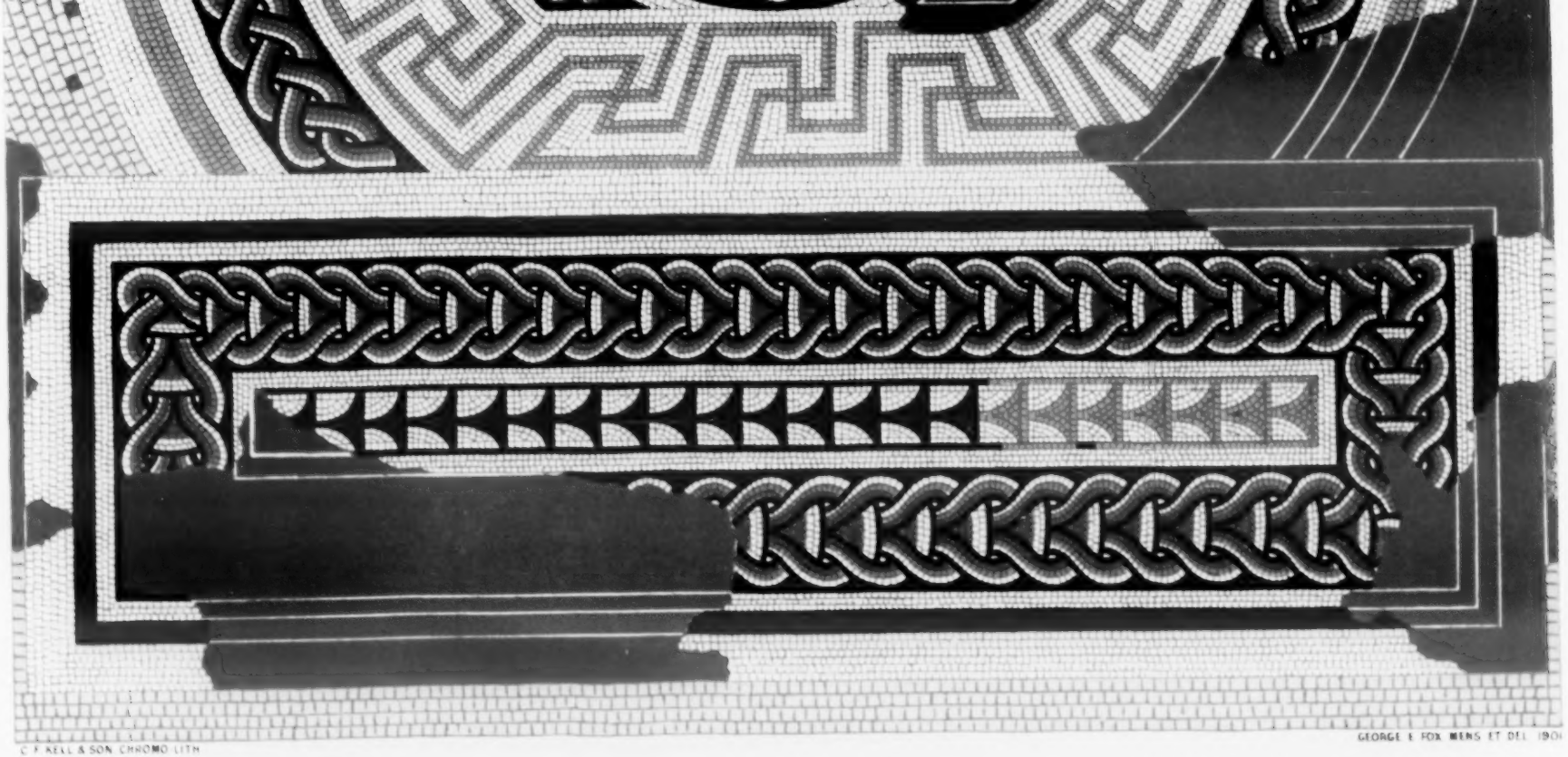
bones found in the inner room "are referable to very young lambs, and these of small size. Parts of at least two animals are present, one somewhat larger than the other. Limb and foot bones are preserved, as well as a piece of a lower jaw, the latter retaining a milk tooth, from which it is evident that these remains belong to young lambs. With these bones was a single fish vertebra which at present has not been identified." On the bones found in the north-west corner of the outer room Mr. Newton reports that all "belong to birds, and some of them are almost certainly parts of a small race of fowls (*gallus domesticus?*) while others are in all probability parts of pheasants. The greater number of these bones are not fully developed, and consequently cannot be definitely determined, but there is no reason for supposing they belong to other forms than those just mentioned." The bones found in the north-east corner of the same room Mr. Newton identifies as "remains of at least two young lambs, including several limb bones, and lower jaw with milk teeth." There were also "numerous birds' bones, almost certainly parts of small fowls and pheasants, but many of these remains belong to very young birds and cannot be identified with certainty."

The presence of these bones is difficult to explain, especially those of the young lambs. Mr. Fox suggests that the bones of the fowls and pheasants may indicate that the room in which they were found was used as an aviary. The mosaic floors, he points out, could easily be kept clean, and the sunk pots could be so placed to contain the birds' food. In confirmation of this theory I may add that the inner part of the room has a number of notches or chases in the side walls about a foot from the floor which may have been to fix perches in.

The last room of the range (12) was a fair-sized one, entered from the room last described. It had a fireplace in its south wall, and in the middle of the floor was a panel of fine mosaic 6 feet square, bordered with bands of coarse red and drab mosaic and set in a ground of drab *tesseræ*. The fine panel had unfortunately been utterly destroyed.

The first of the chambers of the eastern range (13) was originally about 18 feet square, with a mosaic floor of the same character as room 12. Of the fine mosaic centre only a few *tesseræ* remained. The entrance was near the south-west corner, its position being plainly marked in the corridor by a patch of black *tesseræ* inserted on account of the wearing away of those at first laid down.

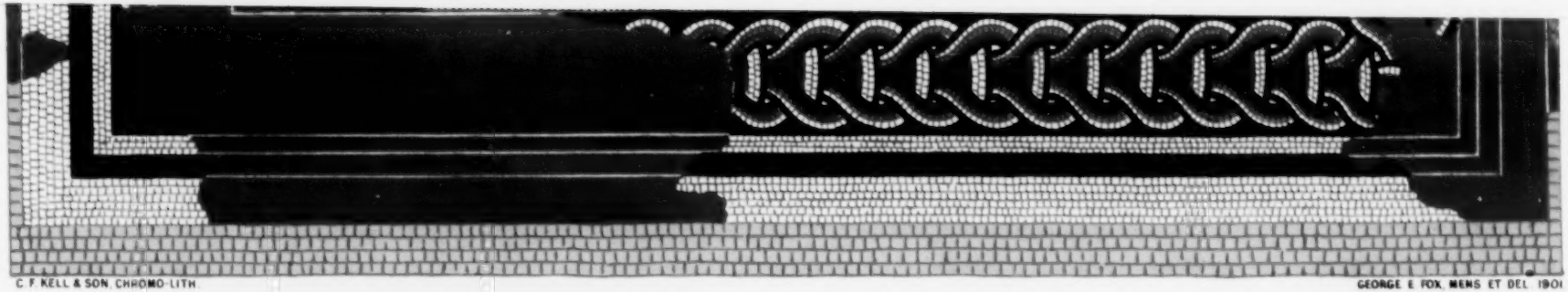
Southwards of this room were originally two others, a smaller and a larger. The larger (14) had a fireplace in its south wall and was paved with red mosaic. The smaller (15) was similarly floored, and served as a vestibule between room 13



C. F. KELL & SON, CHROMO LITH.

GEORGE E. FOX, DELS. ET DEL. 1901

SILCHESTER - MOSAIC PAVEMENT IN HOUSE N° I INSULA XXVII. (½ LINEAR)



C. F. KELL & SON, CHROMO-LITH.

GEORGE E. FOX, MENS ET DEL. 190(

SILCHESTER.– MOSAIC PAVEMENT IN HOUSE Nº I. INSULA XXVII. (½ LINEAR)

Published by the Society of Antiquaries of London 1902.

and the large room (16) which terminated the range. But in the later alterations of the house these two rooms were done away with, for reasons to be described presently.

The large room (16) at which we have now arrived formed, with the nearly circular room (18) south of it, and the large winter room (17) to the west, the principal section of the house. It had in the floor a panel of fine mosaic, 10 feet square, within a frame, as it were, of coarser drab and red mosaic, set in a ground of drab *tesseræ*. The panel was not in the middle, but placed to one side of the room. It was of simple geometrical design, consisting of a circular central panel between four semicircles, all with floral devices, bordered with braidwork, with the interspaces filled with interlacing knots. Though sadly injured in places it was sufficiently perfect to justify our taking it up for preservation.

The position of the pavement shows that it was laid with relation to the winter room on the west, and not to the southern annexe. This winter room (18) was separated from the other by a wide opening paved with coarse red *tesseræ*, upon which stood two square foundations, probably for columns or pilasters supporting the architrave. The room had in the floor a large central panel of fine mosaic set in a red ground, but with the exception of a small fragment at one corner with a bust of a figure of Flora (?), this had been entirely destroyed to enable the plunderers to extract the tiles of the *pilæ* of the hypocaust. The hypocaust, which was of a composite character, was fired from a stokehole on the north, outside the building. The flues were symmetrically disposed round the south, west, and north walls, but there were fewer on the north on account of the entrance doorway there from the corridor. The wide opening on the east of the room prevented any flues being placed on that side save at the ends.

The southern annexe (18), which completed this end of the building, was in plan about three-fourths of a circle nearly 17 feet in diameter within, its depth being 12 feet. Rooms of this unusual form have been met with in other buildings at Silchester, notably in House No. 2, *Insula* I., and House No. 1, *Insula* VIII.; but the ordinary form in Roman buildings in this country is generally semicircular or nearly so. The apse under notice was entered from the room of which it formed part by an opening 10 feet wide, in which was laid, mat fashion, a panel of fine mosaic 3 feet 6 inches wide, to which was adjoined a nearly circular panel of fine mosaic 8 feet in diameter, set in a ground of the drab *tesseræ* which formed the floor of the apse. The design of the panels is shown in Mr. Fox's drawing (Plate III.). The circular piece has unfortunately lost the middle portion, but its unusual shape and the clever design of the fret border seemed to justify its

removal, as well as that of the long panel, for preservation in the Reading Museum. The walls of the apse had been covered with white plaster, with faint traces of yellow lines.

We have now to consider the changes and additions to the house. These additions are so extensive that at first sight they seem to belong to a separate dwelling, but further consideration shows that this is not so.

The first change to notice is the walling up of the doorway from the entrance lobby into the corridor. The lobby was thus cut off from the house, and a new opening seems to have been made in its east side to give access to the courtyard.

The next change was to cut off 13 feet of the western corridor by building a wall across it, and constructing what was perhaps a latrine (19) outside on the east.

The other changes were in the further end of the house. Here the large chamber (13) at the north end of the eastern range was divided by a cross wall, laid quite regardless of the fine mosaic panel in the middle of the floor, which was thus cut in two and practically destroyed. Doorways were then made in each end of the northern half of the room, which now became a passage in continuation of the corridor west of it. To compensate for the loss of so large an apartment the two small rooms (14 and 15) to the south were thrown into the southern half, and their red mosaic pavements continued over the lines of the destroyed division walls. There are indications that a piece was left at each end of the longer wall to serve as a pier or pilaster to carry an architrave or beam across the opening.

The additions consisted, first, in building a series of chambers on the north-east in the space between the street and the north wall of the house produced. But owing to the north wall not being parallel to the street the south wall of the added wing is not in line with the older wall. The addition consisted of a large court, or hall (20), for it may have been roofed in and subdivided by partitions, 42 feet long and 29 feet wide, with a doorway at its south-west corner. Next to it eastwards were three chambers overlapped on the north by a corridor formed within the range. The first was a room (21) 20 feet square, with a floor of *opus signinum*, and doorways in its west, south, and east walls; the next an oblong chamber (22), of which the flooring had been destroyed; and the third another large square room (23), entered from the last at its south-west corner, and warmed by a composite hypocaust. The stokehole of this was in the corridor (24) on the north. Traversing the whole of the southern side of this range of chambers was

another corridor (25), 8 feet wide, paved throughout with coarse red *tesseræ*. At each end the corridor returned southwards. The western return (26) extended along the older part of the house, first as far as a cross wall with a doorway therein, just beyond the doorway of communication between the old and new buildings, and then onwards until it overlapped by a few feet the large square chamber at the end of the first building. Into this room there was probably a door. The corridor ended against a square winter room (27) of the same date, which abutted somewhat clumsily against the older room (16) west of it. Into this it apparently opened. It had a central panel of fine mosaic, of simply geometrical design, part of which remained, enclosed as it were by a frame of red and drab bands and set in a ground of coarse red *tesseræ*. The hypocaust of this chamber was worked from a stokehole outside it on the north side, close to the junction with the corridor wall.

Near the centre of the main division of the corridor and on its south side a doorway opened into a square room (28) with a pavement of red *tesseræ* and a small central geometrical panel of fine work, most of which had perished. Chambers in a like position have been met with in several other houses at Silchester.

The eastern return of the corridor (29) communicated with a block of three rooms (30, 31, 32), with a fourth (34) on the west against which the corridor abutted. In none of these chambers was there any trace of a floor, but in the northernmost (30) a most interesting discovery was made to which reference will be made presently.

Besides the additions to the house which have just been described, there were others filling up the space between its north wall and the street. Starting from the north-west corner of the *insula* were what may have been two yards, one long and narrow (34), the other a large square (35).

Next to the latter, and communicating with it by a door, there was towards the north a room (36) floored with red *tesseræ*, and south of it a smaller room (37) similarly paved, closed on the east by a wooden partition. This separated it from a pentise (38) paved with red *tesseræ*, extending along the house wall to the added block beyond, into which it opened by a doorway. North of the pentise was an open court (39) with a wide opening on the east into the hall or court (20) forming the chief member of the added block.

From this description of the building we must now turn to an interesting question as to its construction.

It has been noticed from time to time during our excavations at Silchester

that the floors of some of the buildings are covered here and there with a more or less regular bed of clay, but no satisfactory explanation of its presence has been forthcoming.

In excavating the house just described, the occurrence of such a regular layer or deposit of clay was so marked over the whole area of the older portions as to suggest a possible origin for it. Over the rooms it was usually about 18 inches thick, and immediately upon it were numerous fragments of roofing tiles or slates. On the line of the corridors the thickness of the clay was only 6 inches. For my own part I have long been convinced that a large number of the buildings at Silchester were of half-timber construction, and that only in the case of rooms warmed by hypocausts, which are usually placed at the ends or sides of the houses, were the walls carried up to their full height in masonry to avoid risk of fire from the flues built into them. This is also borne out by the greater thickness of the walls of these winter rooms.

During last autumn, while Mr. Stephenson and myself were bicycling about the surrounding district, in the neighbouring parish of Hartley Wespall we came upon a cottage in an advanced state of ruin which afforded all the necessary *data* for the problem we were interested in. The cottage was of no great age, perhaps of the 17th century, but its construction was evidently traditional, and characteristic of a district where building stone is non-existent and timber abundant, exactly the conditions that prevailed at Silchester. The lowest courses of the walls were of brick. On them rested a timber framework, pinned together, filled in in the lower story with lathing covered with clay, for which brick had been substituted in places, and in the upper story with wattlework covered with clay. The ground floor was paved with brick, and the roof covered with thatch. The doors and windows had already been taken out. The filling in of the front of the house had for the most part collapsed on to the floor, and the remainder was ready to follow. When the timber framing has been removed for spoil, all that will remain of the cottage will be its brick floor buried beneath a layer of broken bricks and lumps of clay and rotting thatch; and a few years of rain and frost will reproduce almost exactly what we have found in our Silchester house. Here we have the low dwarf walls of flint masonry, the tessellated floors, so valueless as spoil, and the layer of clay from the filling in, thick over the lofty rooms and thin over the low corridors, and strewn with the fragments of the broken roofs. But there is stronger evidence to come. In following up the walls of the eastern chambers of the addition to the house, there were revealed in the northern room (30) strong traces of its destruction by fire,

chiefly in the form of charred timbers and pieces of stamped clay which had been converted into brick by the heat and so preserved. Moreover, these pieces of clay had evidently been fixed to wattlework, the impress of which was plainly visible at the back. The front had been stamped with a herring-bone pattern from a wooden stamp, which had sometimes been impressed heavily, sometimes lightly, and hence a difference in the appearance of the fragments.[a] The resemblance between these pieces and the material of the ruined cottage was so close, that Mr. Fox and Mr. Stephenson subsequently raided the cottage and carried off for comparison the fragments exhibited.

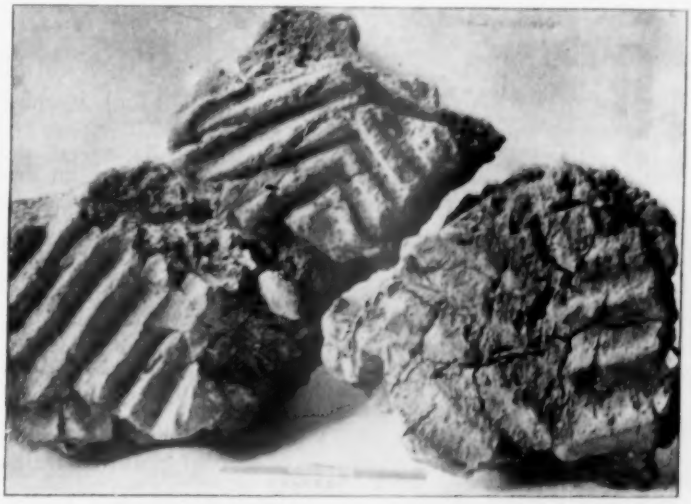


Fig. 1. Stamped Clay from Room (30) House No. 1, *Insula* XXVII.

As the walls of the earlier Silchester houses were 18 inches thick, the wooden framing must have been of substantial construction and formed of large timbers, since the door frames and their sills all formed part of it. In the house under notice, the exact sizes of the sills could in many cases be recovered from the casts of them in the mosaic floors. They were formed of wooden slabs 4½ feet long and 18 inches broad, and 3 inches thick, and the architraves were of course framed into them.

[a] Pieces of clay similarly stamped and also bearing the impress of wattlework on the back have been found in one of the camps in the Roman wall in Germany. See the engraving in *Der Obergermanisch-Raetische Limes des Romerreiches*, Lieferung 16. Kastell Pföring, 23.

From House No. 1 we may now pass to the consideration of House No. 2, which stood directly south of it.

The architectural history of this house is very like that of the other. An earlier courtyard house of similar arrangement and nearly the same size has been enlarged by subsequent additions, and no doubt converted into a more comfortable dwelling.

The house was originally entered from the street on the west of it by a wide opening flanked by pilasters, and probably of some architectural pretensions, which gave access to a large square lobby (1) floored with red *tesseræ*. From this a doorway led northwards into a corridor (3) paved with red mosaic. In the angle formed by lobby and corridor was a small porter's lodge (2), with its entrance from the latter.

The corridor extended northwards for 53 feet, and then returned eastwards through a doorway or curtained opening for another 50 feet, it then again turned southwards for 25 feet.

The house contained, like House No. 1, a northern and an eastern range of chambers. The northern consisted of a winter room (4), warmed by a composite hypocaust; a passage (5); and three other rooms (6, 7, 8), of which the first had a fireplace in its south wall.

The hypocaust of the winter room was fed from a stokehole on the north, but the floor it supported had been utterly destroyed in order to extract the tiles and *pilæ* of the hypocaust itself. This room had a doorway from the corridor and another entrance on the east from the passage next it.

This passage (5) had an *opus signinum* floor and painted walls, and probably doorways at each end, though only the southern remained. Under the floor was found a line of older wall, and also a pit (No. XXI.) 17 feet deep, which yielded much broken pottery and two complete vessels.

The remaining rooms of the range and all the others in the older part of the house had floors of the usual coarse red-tile *tesseræ*.

The eastern range contained two rooms only (9, 11). The northernmost (9) had in the north-east corner an inner chamber or closet (10).

There was probably an upper story to the house, but it is difficult to locate the staircase.

It will be observed that like House No. 1 the house under notice had at first only one winter room, though another was provided with a fireplace. An additional series of chambers was accordingly built on to remedy the defect.

The first alterations to be noted are also paralleled by those in House No. 1.

They consisted in building two cross walls across the western wing of the corridor to make a small room (3*) in the middle of its length, with a door into it from the courtyard. Another doorway from the courtyard was also made into the remnant of the corridor to the north. To what use the southern end of the corridor, together with the entrance lobby and porter's lodge, was put must be a matter of conjecture. There is also no indication how the house was henceforth entered from the street.

Another alteration, though not necessarily next in date, was the addition of an external corridor (12) on the east of the building. It seems to have been somewhat carelessly planned; the southern end being built obliquely, and the northern extremity carried beyond the line of the house. It has been subsequently subdivided by cross walls.

But the most noteworthy addition to the house is the group of winter rooms at the south end of the eastern range. These are three in number, but the easternmost (19) seems to have had no connection with the others and was clearly added later.

The other two lay, as it were, on either side of the line of the western wall of the east range produced. On the east side of this line a narrow lobby or passage (13) was built out, and beyond it a room (14) about 22 feet square. This overlapped the range by a few feet on the east to allow of the stokehole (15) of the hypocaust, which was in the north wall, being worked from outside the building. The other room (16) extended as far south as the other, but its width was only $16\frac{1}{2}$ feet; the eastern wing of the inner corridor was therefore prolonged to meet it (17), no doubt to give access to it. The hypocaust of this room was in communication with the other, and so one stokehole served the two. Both were of composite character, but the *pilæ* of the western room had been carried off as spoil, with much of the material of the blocks. In the large room the bases of the *pilæ* remained, formed of round tiles 8 inches in diameter. Isolated examples of these circular tiles have often turned up in previous years, but this is the first out of a large number of hypocausts in which they have been found in place as *pilæ*. The north-east corner of this hypocaust contained a novel feature in the form of a sloping flue built of the usual box-shaped tiles.

The third winter room (19) was about the same size as the westernmost, and was built on to the central one in just the same way. In order to reach it the stokehole of the large hypocaust was enclosed (15) and then a narrow angular passage (18) built outside it, extending from the south end of the added eastern corridor to the middle of the north side of the new room. There must have been a way

across this passage to the enclosed stokehole. The hypocaust of the new room was also of composite character, with a central passage filled originally with circular tile *pilæ*, but the passage has subsequently been narrowed by adding to the side blocks and consequently reducing the number of *pilæ*. This hypocaust had its stokehole on the east within a large enclosure (20), which was probably roofed in as a wood store. In the north-west corner of it was a large raised block with a surface of burnt tiles, as if it had formed the floor of an oven.

The eastern end of the woodshed, as will be seen from the plan, overlaps one corner of an earlier enclosure (Block III.). This was roughly a square of 40 feet, with a narrow strip cut off along one side. It may have been a stable, but had evidently been destroyed before the woodshed was built over it.

One other addition to House No. 2 remains to be noticed, the corridor (21) which traversed the whole of the north wall. This could only be traced by its gravel foundations.

Close to the north-east corner of the house, and separated from it by an interval of about 2 feet, was a building (Block I.) which appears to be contemporary with the additions described above.

It consisted of two chambers built end to end, forming a block standing east and west. The easternmost chamber was built first, and was about 19 feet long and 17 feet wide. The west wall was 18 inches thick, the south and east walls 28 inches thick, and the north wall 30 inches thick. This last had been inadvertently built over a large hole filled with loose rubbish. To counteract any possible weakness there was therefore built into the face of the wall a segmental arch of tiles 10½ feet in span. Buttresses were also added at the northern ends of the east and west walls and the south end of the east wall. The room was floored with *opus signinum*, and had at each end the rubble base of a pilaster or pedestal from 3 to 3½ feet square. There were traces of a wide entrance in the south wall.

The westernmost chamber was built up against the other with straight joints. It was 21½ feet long and 17½ feet wide, with walls only about 2 feet thick. It was floored with *opus signinum*, and along the east end was a bench or counter of masonry. The entrance was in the south wall.

What this building can have been for is a matter of surmise.

A little to the east of Block I. were uncovered the foundations of a large oblong structure or enclosure (Block II.) 43½ feet long and about 22 feet broad, which stood obliquely with respect to the main lines of the adjoining houses. Its use is purely conjectural.

Block III. has already been noticed.

House No. 3 stood in the south-west corner of the *insula*, from which it extended northwards over 130 feet to within a short distance of House No. 2. It belonged to the corridor type, having a central row of chambers, with a broad corridor, about 11 feet across, between it and the street, and a narrower corridor, only $6\frac{3}{4}$ feet wide, on the east. The northern end of the house has been destroyed. Attached to its north-east corner there had been a large oblong enclosure, but this was demolished in later times and a small square structure built athwart the gravel foundations of its south wall. Some of the chambers and the eastern corridor retained traces of floors of plain red or drab mosaic. The southern end of the house is very confused. There seems to have been a wide entrance into it from the street on the west, but the part of the building into which it opened has been partially cleared away, and its site covered with a series of furnaces; the wreck here, however, is too complete to enable anything definite to be made out. On the north-east of this part was a hypocaust built up with rubble blocks. There were some indications to the east of some building along the street.

The wall here bounding the *insula* on the south could be traced on this side for a distance of 304 feet from the south-west angle. It then returned northwards for a little distance, but not quite at right angles to the street, with what may be a series of buttresses on its west side, but there was no corresponding wall further east, nor anything beyond, except a gravel foundation running in a different direction. In the intervening ground was the well-preserved base of a hearth, and near it the fragment of another.

Near the middle of the southern border of the *insula* was the only other building in it of which any definite traces remained. It consisted of an oblong structure (Block IV.) standing somewhat obliquely to the line of street. It was subdivided unequally by a wall, and the lesser division was again subdivided by a wall with a central doorway. There was nothing to show how the building was paved, or for what it was used; but the walls were well built of flint rubble, with tile quoins.

As there remained a long strip of ground between the street south of *Insula* XXVII. and the modern road, this too was excavated, but without any great results. The discoveries made will more properly be described when the *insula* to which they belong shall have been excavated.

Turning to the objects found during the excavations, mention must first be made of the architectural remains.

These are unfortunately few in number, being confined to two decayed stone finials, and a fragment of the arch of a niche or recess. The latter, which was

found in a trench in *Insula* XXII., has the soffit and side ornamented with foliage and scroll work, and in the spandrel a figure of a man (fig. 2).

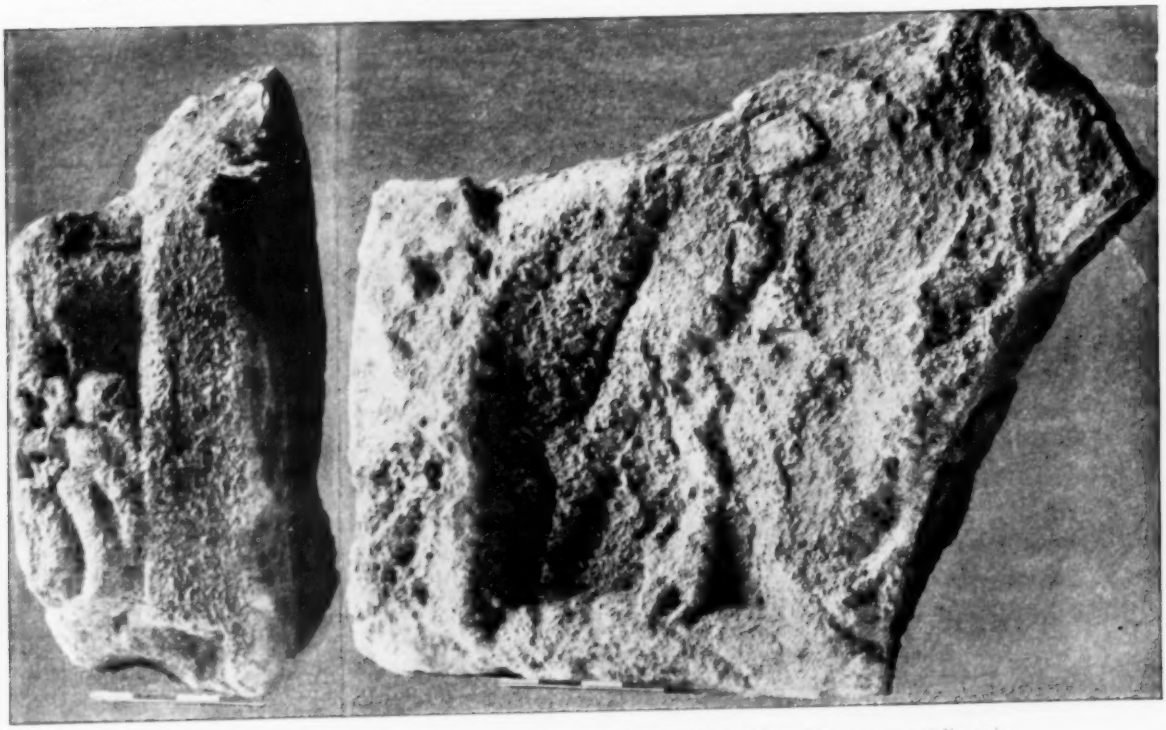


Fig. 2.—Fragment of arch of a niche or recess, found in *Insula* XXII., side and front views. (¼ linear.)

Another architectural fragment of considerable interest is one side of an ordinary flue tile found in *Insula* XXVII., on which the maker has not only

Fig. 3.—Inscribed flue tile found at Silchester. (¼ linear.)

inscribed his own name, but the name of the thing he had made, *Fecit tubam Clementinus* (fig. 3).

This is another of a number of similar proofs that some, at any rate, of the people living in or near *Callera*, and they of the working classes, wrote Latin, even if they did not speak it, though the latter is more likely.

Another tile was found bearing upon it certain lines, which had been drawn upon the clay while soft with the maker's finger or a stick. One corner has been broken off and lost, but there can be no doubt that, when whole, the lines were arranged upon the tile as in the accompanying diagram (fig. 4). As the lines are too shallow to serve as a key for mortar, and were clearly not for any ornamental purpose, they were probably drawn for playing some game.

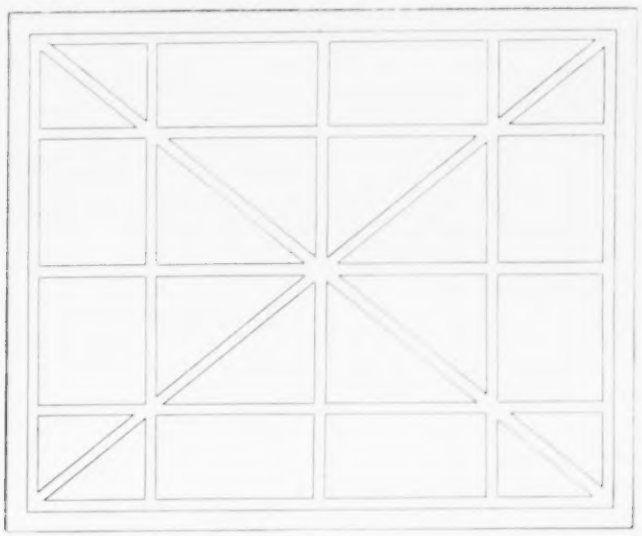


Fig. 4. Diagram of lines on a tile, perhaps for use as a gaming-board. (½ linear.)

The lines to a certain extent resemble those for playing Nine Men's Morris, and the tile was perhaps used as a board for a similar game to that alluded to by Ovid:

> Parva tabella capit ternos utrimque lapillos;
> in qua vicisse est, continuasse suos.[a]

The contents of the pits have produced as usual some interesting and unusual objects.

[a] *Ars amatoria*, iii. 365. Compare also *Tristia*, ii. 481. For references to these quotations I am indebted to Mr. A. R. Goddard.

Pit VI. yielded, amongst other things, a very perfect axehead, a pewter jug with ornamented handle, and the iron tyres of a pair of wheels 43 inches in diameter. These tyres are $1\frac{1}{4}$ inch wide and 1 inch deep, and are well preserved, one being complete, and the other broken in one place only. From the absence of nail holes it is evident that they were shrunk on to the wood in the way still usual. Of the wheels no remains were found.

Pit VIII., in *Insula* XXII., turned out to be a well 21 feet deep, lined with square wooden framing, from which we recovered, from beneath the large stone previously mentioned, two whole vessels of pottery, a pewter dish with flanged edge, of a type similar to those found in 1897 by the Rev. G. H. Engleheart at Appleshaw,[a] and a large pewter bucket. This last is a most unusual find.

Pit XIV., which was 20 deep, was singular in having at the bottom a small dip hole, 2 feet in diameter, the sides of which were strengthened by short stakes.

Pit XVI. yielded as many as nine whole pots from a layer of gravel about 15 feet down. Pit XXIV. also yielded six vessels from a similar layer of gravel at a depth of 14 feet.

Pit XXV. proved at a depth of 14 feet to be a square lined well, which went down 10 feet further. Besides a black inscribed pot, a Samian dish, and a vase of Caister ware, it yielded an iron hook, perhaps a fire hook, an iron hoop of a small barrel, and an iron staple, which for perfection of preservation for their date it would be hard to find the equals.

There are a number of other interesting iron things to add to the remarkable collection of tools and implements in the Reading Museum, as well as the usual odds and ends in bronze, bone, leather, glass, etc. One piece of glass is engraved with a fish and a palm branch, both undoubted Christian emblems, and traces of letters (fig. 5).

Fig. 5. Engraved Glass with Christian emblems. (½)

The coins do not call for any special notice; the only one of any particular interest being a gold plated British one of the first century, a contemporary forgery.

There is yet one other matter to which to call attention, the continuance of the investigation begun in 1899 for the recovery of Romano-British plant remains. It will be remembered that last year Mr. Clement Reid, F.R.S., was able to lay before the Society a list of nearly one hundred species of plants, the evidence of which had

[a] *Archaeologia*, lvi. p. 11, fig. 8.

been recovered from the pits and wells met with during our excavations at Silchester. This evidence is dependent, firstly, upon most careful precautions being taken to obtain uncontaminated material, and, secondly, upon the washing and patient examination of large quantities of the material so collected. This collection and examination have been undertaken by our colleague Mr. A. H. Lyell, and the result of his labours have been summarised in the appended note by Mr. Clement Reid, to whom we are again indebted for his very kind help.

The accompanying block-plan (fig. 6) shows the progress made in the excavation of the site.

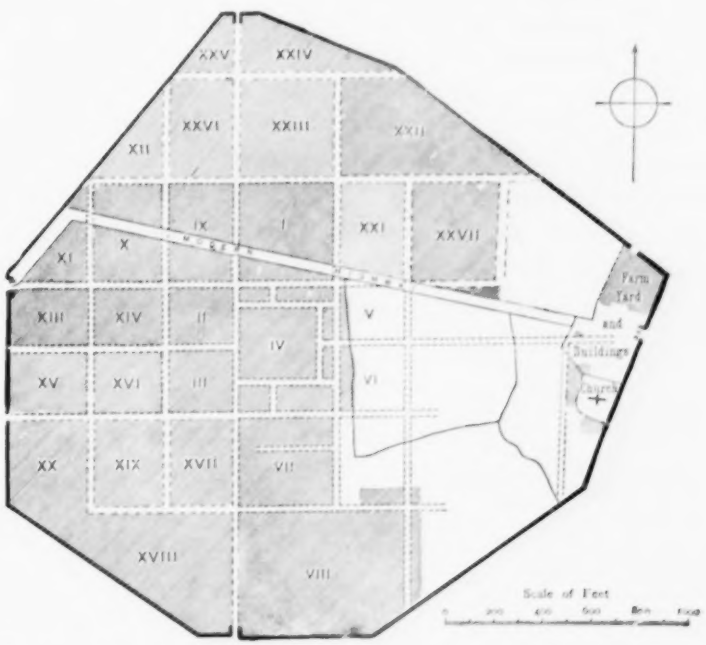


Fig. 6. Block-plan of Silchester, showing portions excavated down to the end of 1901

Notes on the Plant-Remains of Roman Silchester. By CLEMENT REID, *Esq. F.R.S.*

The examination of the material collected from the pits during the season 1901 by Mr. Lyell has shown that the same plants occur again and again, only four additions being made to the list, viz.:

Caltha palustris, *L.* (Marsh Marigold).
Polygonum Convolvulus, *L.* (Black Bindweed).
Chenopodium rubrum, *L.* (Goose-foot).
Urtica urens, *L.* (Nettle).

Again I find an exceptional number of seeds of poisonous plants in these wells, hemlock in particular occurring abundantly in several gatherings, and belladonna in three of them.

There is still the same entire absence of many of our commonest weeds, the dandelion, camomile, daisy, white dead-nettle, and all the veronicas being absent in the true Roman deposits; though three shallow excavations in Silchester yield numerous seeds of *Veronica hederæfolia*.

The details of the plants found are as follows:

CONTENTS OF A POT, 3 feet below surface, and showing signs of worm borings.

Veronica hederæfolia, *L.*

Probably post-Roman.

INSULA XXII. PIT VII. ON STREET. At 3 feet from surface.

Veronica hederæfolia.
Labiate. (?)
Chenopodium Bonus-Henricus.
Urtica dioica.
Triticum sativum.

Probably post-Roman.

PIT VII., E. side, at 12 feet 6 inches, "D" and "G"; also at 15 feet deep, "E."

Sambucus nigra.

Insula XXII., Pit VIII. (a well), at 18 feet deep.

Ranunculus repens.
Brassica (not B. alba).
Senebiera Coronopus.
Lychnis alba.
Stellaria media.
Spergula arvensis.
Malva sylvestris.
Malva rotundifolia.
Linum usitatissimum. (?)
Rubus fruticosus.
Conium maculatum.
Sambucus nigra.
Valeriana officinalis.
Cnicus lanceolatus.
Solanum Dulcamara.
Atropa Belladonna.
Lamium purpureum.
Chenopodium Bonus-Henricus.
Polygonum Aviculare.
Rumex.
Urtica dioica.
Corylus (?)
Triticum sativum.

Contents of pot from Pit VIII.

Malva sylvestris.
Conium maculatum.
Urtica dioica.

From two whole vessels, found in Pit VIII., 21 feet deep, quite at bottom of well.

Sambucus nigra.

Insula XXII. Pit IX., at 12 feet deep.

Chenopodium Bonus-Henricus.
Polygonum Convolvulus.
Triticum sativum.

Insula XXII. Pit X., at 8 feet.

Chenopodium Bonus-Henricus.

Insula XXVII. Contents of three pots from Pit XV.

Ranunculus Sardous.
Thlaspi arvense.
Prunus.
Rubus fruticosus.
Conium maculatum.
Sambucus nigra.
Cnicus lanceolatus.
Atropa Belladonna.
Prunella vulgaris.
Lamium purpureum.
Chenopodium Bonus-Henricus.
Rumex, 2 sp.
Corylus Avellana.
Carex.

Insula XXVII. Contents of black pot from bottom of Pit XVII., at 17 feet.

Ranunculus Sardous.
Stellaria media.
Stellaria graminea.
Rubus fruticosus.
Bryonia dioica.
Conium maculatum.
Sambucus nigra.
Valeriana officinalis.
Lamium purpureum.
Chenopodium Bonus-Henricus.
Urtica urens.
Carex, 2 sp.

Insula XXVII. Pit XVIII., 8 and 9 feet deep.

Caltha palustris.
Ranunculus Flammula.
Ranunculus repens.
Ranunculus Sardous.
Thlaspi arvense.
Lychnis alba.
Stellaria media.
Rubus fruticosus.
Potentilla Tormentilla.
Conium maculatum.
Sambucus nigra.
Valeriana officinalis.
Atropa Belladonna.
Lamium purpureum.
Chenopodium Bonus-Henricus.
Chenopodium rubrum.
Rumex obtusifolius.
Urtica dioica.
Urtica urens.
Carex.
Triticum sativum.

Insula XXVII. Pit XIX., 8 to 9 feet deep.

Fumaria officinalis.

STONEHENGE. VIEW OF THE "LEANING STONE" BEFORE IT WAS SET UPRIGHT IN 1901.

Published by the Society of Antiquaries of London, 1902.

III. *Recent Excavations at Stonehenge.* By William Gowland, Esq., *F.S.A., F.I.C., Associate of the Royal School of Mines; with a Note on the Nature and Origin of the Rock-fragments found in the Excavations.* By Professor J. W. Judd, *C.B., LL.D., F.R.S., F.G.S.*

Read 19th December 1901.

Fig. 1. General View of Stonehenge after the "leaning stone" was set upright.

The fall of two of the stones of the outer circle of Stonehenge, No. 22 and its lintel No. 122,* on the last day of the century, directed the attention of the public, and especially of archæologists, in a very forcible manner to the insecure position of other stones in this venerable monument. At a meeting of the Council of the Society soon afterwards a resolution was passed and sent to Sir Edmund Antrobus, the owner of Stonehenge, expressing their desire to co-operate with him in any operations which might be advisable for its preservation. Sir Edmund accepted the offer, declined any pecuniary aid, and invited the Society to form, together with the Wiltshire Archæological Society, and the Society for the Protection of

* See General Plan, Plate VII. This plan is based partly on that given in Professor W. M. Flinders Petrie's *Stonehenge: Plans, Descriptions, and Theories* (London, 1880), and partly on my own surveys made after the "leaning stone" had been set upright.

Ancient Buildings, a small committee to advise him as to the work required for the conservation of the monument and the order in which it should be carried out.

The committee met in these rooms on the 26th March last, and again at Stonehenge on the 12th April, under the presidency of Lord Dillon, our President. On the latter occasion a very careful examination was made of the monument, special attention being given to the stones which were in the most critical condition and to those which had fallen in recent times. As the result of their deliberations, the following resolutions were passed and communicated to Sir Edmund Antrobus with a recommendation that the leaning stone, Plate IV. and fig. 2,* No. 56 on Professor Flinders Petrie's plan of 1880, be first dealt with:

RESOLUTIONS.

(1) That this committee approves of the suggested protection of Stonehenge by a wire fence not less than 4 feet high, following on two sides the existing roads and crossing on the west from the 331-foot level on the north road to the 332-foot level on the south road shown on the O.S. map (1-2,500). Wilts. Sheet LIV. 14.

(2) That the committee recommends, without prejudice to any legal question, that the local authorities be requested to agree to divert the existing track-way or ridge-way from Netheravon, now passing through the earth circle so as to pass from the 302-foot level to the 331 and 332 foot levels in the O.S. map immediately west of Stonehenge.

(3) That stones 6 and 7 with their lintel, and stone 56 (according to the numbering on Mr. Petrie's plan) be first examined, with a view of maintaining them in a position of safety.

(4) That, in the opinion of this committee, stone 22 should be replaced, stone 21 be made safe, and the lintel of 21 and 22 be replaced in the most safe and conservative manner. The committee also recommends the re-erection of stones 57 and 58 and their lintel 158.

(5) That the instructions to custodians already in force be approved with a few suggested alterations.

(6) That this committee feels that it is impossible to overstate the value of the assistance which the county council, the district council, and the parish council of Amesbury can give to the efforts made to preserve this unique monument.

(7) That these resolutions be sent to Sir Edmund Antrobus, with the earnest thanks of the committee for the part he is proposing to take in the preservation of Stonehenge, and that it be left to him to communicate them to the Press.

As regards the first I may say, that after having worked among the stones daily during September and part of October last, I have come to the conclusion that without the enclosure there could be no efficient preservation of the monument, considering the changed conditions brought about by the establishment of the large military camp in the neighbourhood.

* Figs. 2, 4, 5, 6, and 27, and Plate IV., by the kind permission of Miss Clarisse Miles, are taken from her excellent series of photographs of Stonehenge.

As regards the second, I think it will be admitted by all who desire the preservation of Stonehenge in its entirety, that it is greatly to be deplored that

Fig. 2. View of the "leaning stone," showing its inclination, and its position relative to the "blue stone" monolith.

a trackway for wheeled traffic should exist through the monument between the

rampart and the stones. And I may add that it is, to say the least, astounding that the diversion of that roadway should be opposed by any archæologist.

As regards the third, I can assure you that the hitherto leaning stone has now been made safe for all time.

That this leaning stone, said to be the largest native monolith in Britain, should be set upright was imperative, as it has three horizontal fissures of unknown depth extending almost right across its broad face. As these are on the upper side, fully exposed to the weather, they must, by the action of rain and frost, have been steadily deepening more and more year by year, so that the breaking off of the upper part of the stone was merely a question of time.

The necessity for raising it was further emphasized by the fact that its inclination from the perpendicular had been gradually increasing. In 1660 its angle of inclination was 75°, in 1720 70°, in 1870 66°, and in the present year (1901), before the operations were commenced, I found it to be only 60·5° (Fig. 2.)

It was my privilege to be appointed as your representative to conduct the exploratory work, an account of which I will now endeavour to lay before you as briefly as possible.

Mode of Conducting the Excavations.

Before proceeding with the excavations, a datum line passing through the highest point of the surface of the ground to be excavated was carefully determined, and from this line the vertical position of each layer of material removed from the various excavations was observed and recorded. This was rendered necessary by the irregular contour of the ground surrounding the stone.

The exact level of this line was then ascertained by levelling up to the bench mark (338·9) of the Ordnance Survey on stone No. 16, so that at any future time the depth at which any of the objects were found can be accurately referred to, no matter whatever changes occur in the ground level. It was found to be 1 foot 5 inches below the bench mark and hence 337·4 above the sea level.

The position of the objects found was determined by means of a registering frame divided into 6 and 12 inch, and a vertical rod divided into 6 inch spaces.

The frame and rod are shown in fig. 3.

The frame, it will be seen, consists of two longitudinal and two transverse planks of deal.

The longitudinal and transverse pieces are pierced with holes at intervals

to allow them to be adjusted to suit excavations of different areas. They were held in position by pins passed through the holes.

The long sides are marked at intervals of one foot by letters, each one foot length having its distinctive letter. The transverse pieces are similarly divided and marked.

It is hence evident that a letter from either of the side pieces, together with one from either of the cross pieces, indicates definitely the position of any square foot of area in a horizontal plane within the frame.

The vertical rod is marked with numbers instead of letters, each number representing a 6-inch vertical space.

By combining one of these numbers, with two of the letters indicating a square foot of horizontal area, the exact position of a space 12 inches by 12 inches by 6 inches in any part of the excavation is accurately registered.

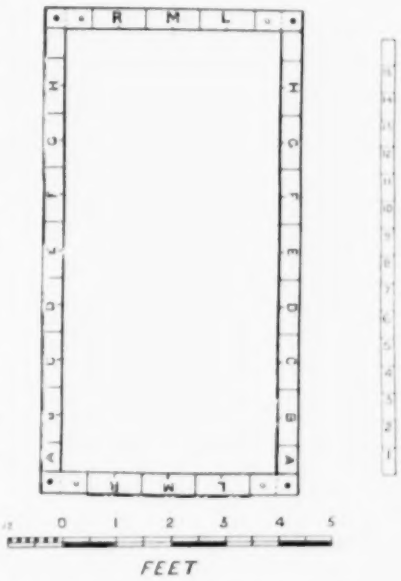


Fig. 3. Registering frame and vertical rod.

Each plot of ground excavated was marked with a distinctive Roman numeral See plan of the excavations (fig. 7).

The positions of the objects found were thus accurately recorded without difficulty.

For example, an object in Excavation III., Division CM and Layer 5 would be registered III. 5 CM, which signifies that it was found in Excavation III. in the fifth 6-inch layer from the datum line, and in the square situated 2 feet from the end and 1 foot from each side of the digging.

It will thus be seen that the whole of the objects unearthed could, if necessary, be put back into the exact positions in which they were found.

Each excavation was made of a definite area. Its position was accurately laid down with reference to the middle line of the stone at the datum line and plotted on the plan.

Before commencing to dig, the registering frame was fitted in a horizontal position around the area to be excavated, and at the level of the datum line, and the space within it pegged out and divided by means of cords and iron pins nto strips one foot wide.

The frame in position at Excavation VI. is shown in fig. 4. The turf was

taken off in one foot squares, and was subsequently examined. The material

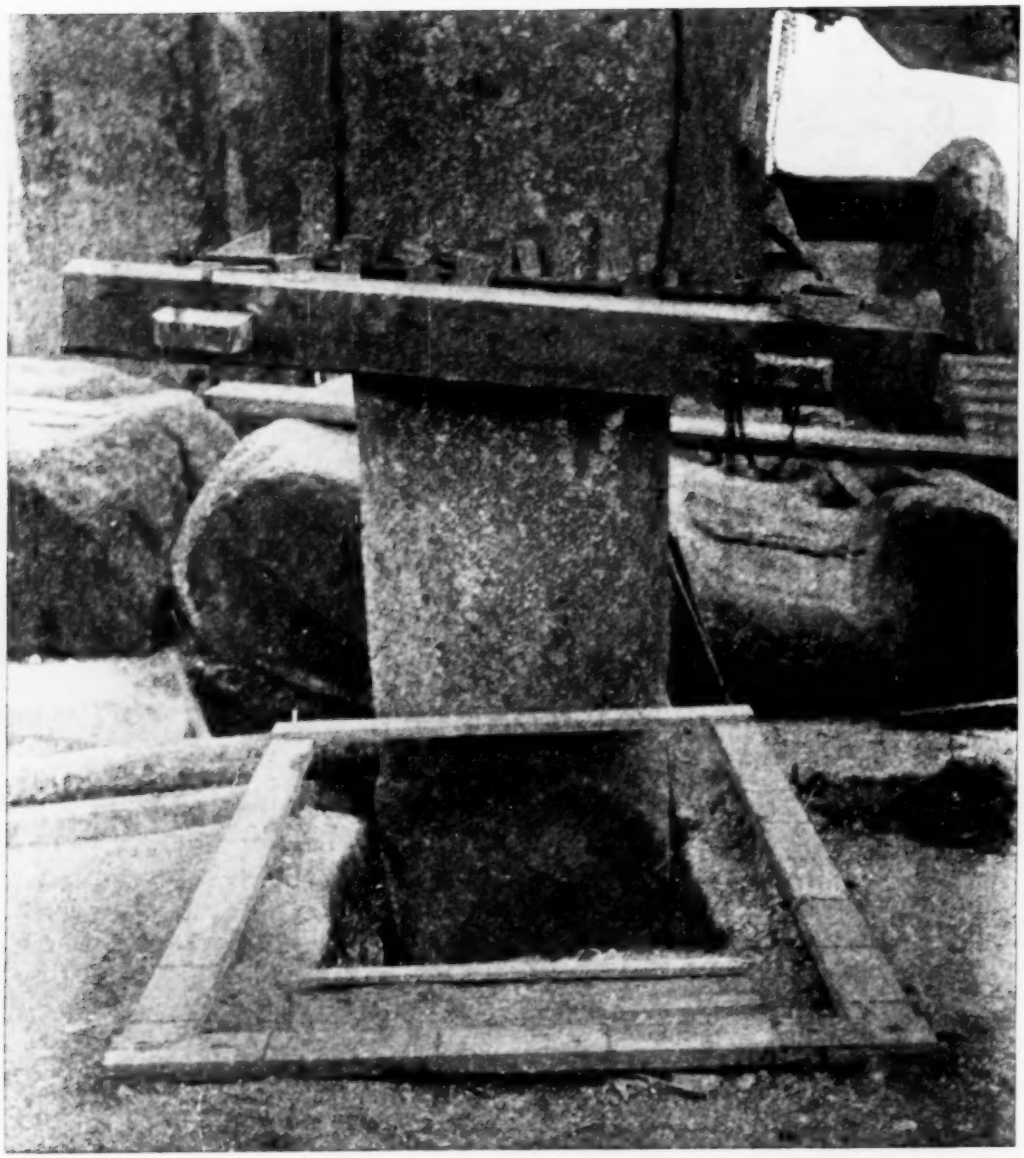


Fig. 4. The registering frame in position around Excavation VI.

from each excavation was taken out in 3 or 6-inch layers of approximately one square foot in area, except, in one or two places honeycombed with rabbit burrows

when it was removed in strips one foot in breadth, and in the solid chalk rock when the digging was carefully watched.

In tunnelling beneath stone No. 55*a* Excavation Q, the positions of the objects were determined by inspection, one side of the registering frame being placed along the side of the stone.

The material was removed in buckets and carefully sifted through a series of sieves of 1 inch, $\frac{1}{2}$ inch, $\frac{1}{4}$ inch, and $\frac{1}{8}$ inch mesh, in order that no object, however small, might be lost.

Fig. 5. The "leaning stone" with the cradle and cables attached.

The excavations were made, as a rule, in the order shown by the Roman numerals in the plan (fig. 7), and as soon as each was completed, concrete to a greater or lesser amount was put in before the next was proceeded with.

The setting up of the stone is, however, so intimately connected with the excavations that I propose first to give you an outline of the operations by which it was accomplished. The method adopted for setting it upright was devised by Mr. Carruthers; the engineering operations were superintended by Mr. Blow; my special work being the superintendence of the excavations.

A wooden frame or cradle of stout timbers was first fitted carefully to the

[illegible] as shown in figs. 5 and 6. This was connected by means of strong cables with two powerful winches about 45 feet distant on the south-west side.

The operations of raising the stone were very cautiously and slowly carried out. It was raised only two or three inches at a time, and at each interval was shored up with the larch struts seen in fig. 6.

After it had been set upright in a south-west direction, its inclination to the north-east was rectified by means of a hydraulic jack working against the lower

Fig. 6. The "leaning stone" set upright.

side of the cradle, until the sloping side of its base practically rested on its old supporting stones. (See fig. 11.)

The raising of the stone was begun on September 18th, and completed on September 25th.

The imposing height of this grand pier of the central trilithon is well seen in fig. 6, which represents it immediately after it was set upright, and in the general view of Stonehenge (fig. 1) as it now appears.

Here I may say that the excavations which were made, were only those which were necessary for the engineering operations of raising the stone. In addition to those immediately around the stone, six holes, A to F, shown on the general plan (Plate VII.), were dug for the insertion of the lower ends of the timber struts used for shoring up the monolith whilst it was being raised. Two shallow cavities were also dug for the reception of the winches.

No digging was carried on except in the presence of Mr. Blow, Mr. Stallybrass, or myself, and I made a point of being at the excavation before the work of each day began, and remaining until it was finished.

A watchman was on duty at night to ensure that the excavations should not be tampered with.

Rocks of which the Stones consist.

Before proceeding to describe the excavations, it may be well to consider briefly the chief kinds of rock of which the stones of Stonehenge consist, and of which chippings and fragments[a] were so numerous in the ground excavated.

The large monoliths of the outer circle, and the trilithons of the horseshoe are all sarsens. (See general plan, Plate VII.) These sarsens in their composition are sandstones, consisting of quartz-sand, either fine or coarse, occasionally mixed with pebbles and angular bits of flint, all more or less firmly cemented together with silica. They are the relics of the concretionary masses which had become consolidated in the sandstone beds that once overlaid the chalk of the district, and had resisted the destructive agencies by which the softer parts of the beds were removed in geological times. They range in structure from a granular rock resembling loaf sugar in internal appearance to one of great compactness similar to and sometimes passing into quartzite.

The monoliths and trilithons all consist of the granular rock. The examples of the compact quartzite variety, of which many were found in the excavations, were almost without exception, either hammerstones that had been used in shaping and dressing the monoliths, or fragments which had been broken from off them in these operations.

The small monoliths, the so-called "bluestones," which form the inner circle and the inner horseshoe, are, with the undermentioned exceptions, all of diabase

[a] I am indebted to the kindness of my friend Professor Judd, Dean of the Royal College of Science, for the identification of the specimens of rock found in the excavations. The above is merely a rough summary of the more important kinds. For a complete account of them the reader is referred to Professor Judd's note (*post*).

more or less porphyritic. Two are porphyrite (formerly known as felstone or hornstone). Two are argillaceous sandstone.

Mr. William Cunnington, F.G.S., in a valuable paper, "Stonehenge Notes,"[a] records the discovery of two stumps of "bluestones" now covered by the turf. One of these lies in the inner horseshoe between Nos. 61 and 62, and 9 feet distant

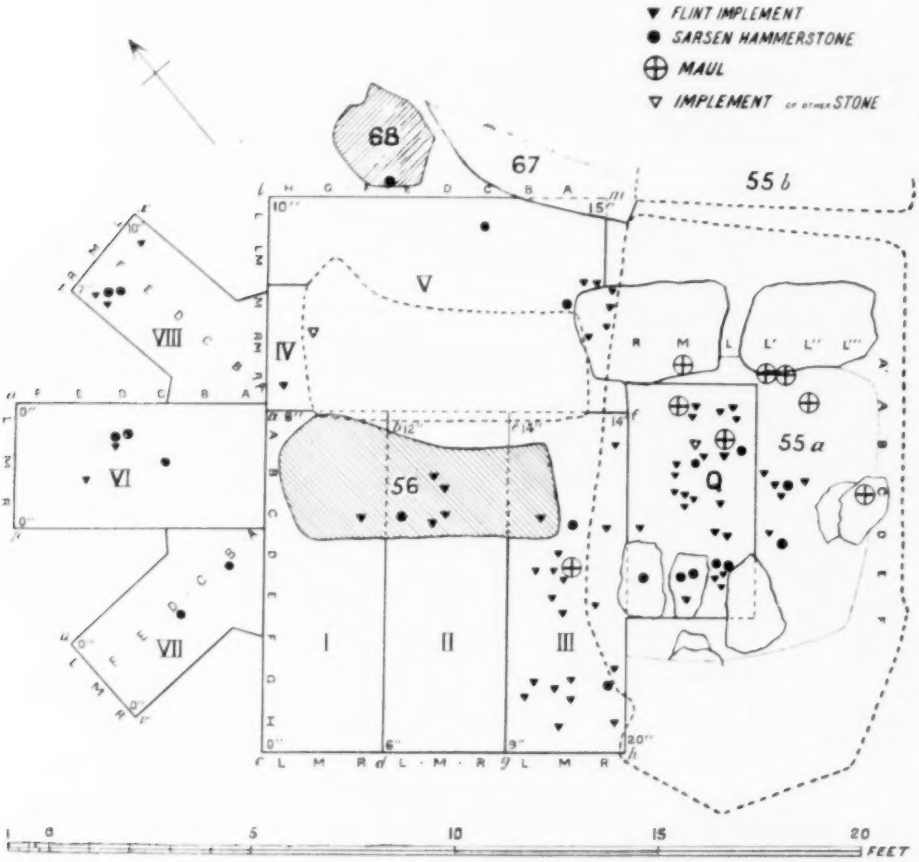


Fig. 7. Plan of the excavations around the stone.

from the latter. It is diabase. The other is in the inner circle between Nos. 32 and 33, 10 feet from the former, and consists of a soft calcareous altered tuff, afterwards designated for the sake of brevity "fissile rock."

The altar stone is of micaceous sandstone.

All these rocks, excepting the sarsens, are foreign to the locality, but I am

[a] *Wilts Archæological and Natural History Magazine*, xxi. 141-149.

informed by my friend Professor Judd, that there is no reason why they should not have been found on the plain in the vicinity of Stonehenge, having been transported there as glacial drift.

All the rocks were represented in the chippings which were found in the excavations.

The Excavations.

The excavations were begun on the south-west side of the leaning stone, by opening up the ground in three sections, I., II., III., as shown on the plan (fig. 7).

Section I. was first excavated, then Section III., and lastly Section II. As each was completed, it was partially filled with concrete before the next was proceeded with. The concrete was put in in such a manner that its front face formed a perpendicular wall against which the stone would rest when set up.

This procedure was necessary, as it would have been unsafe to have exposed and left unsupported the whole of the base of the monolith at one time.

In Section III. an oak log was driven into the chalk and embedded in the concrete wall opposite the lowest point of the base to prevent any slipping of the stone when it was being raised.

Excavation IV. was next made, after which the monolith was raised in a south-westerly direction until it was approximately perpendicular.

The north-west half of Section V. was then undertaken, and when completed the inclination of the monolith to the south-east was rectified.

Excavations VI., VII., VIII., and the remainder of V. were then taken out in the order given, and lastly Excavation Q.

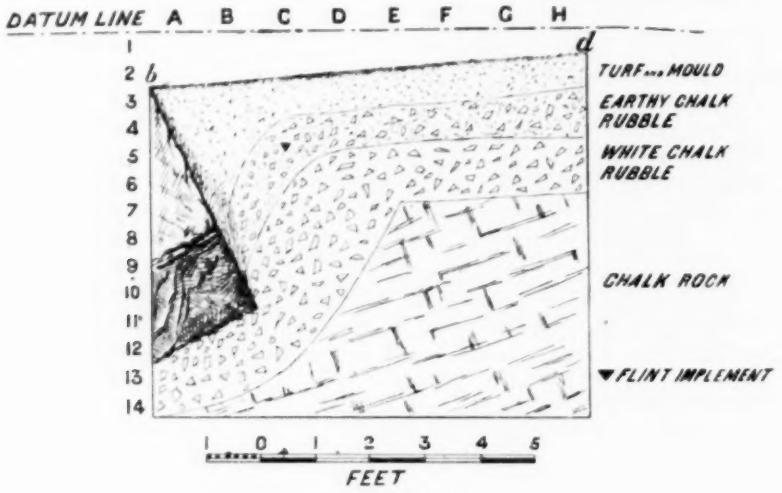
The chief features of the most important of the excavations will now be considered. For a complete account of the whole of the exploratory work, in which the nature and contents of every portion of the ground opened up is fully described, the reader is referred to the Appendix.

The positions in which the stone implements were found are projected on the above plan and into one section of each excavation.

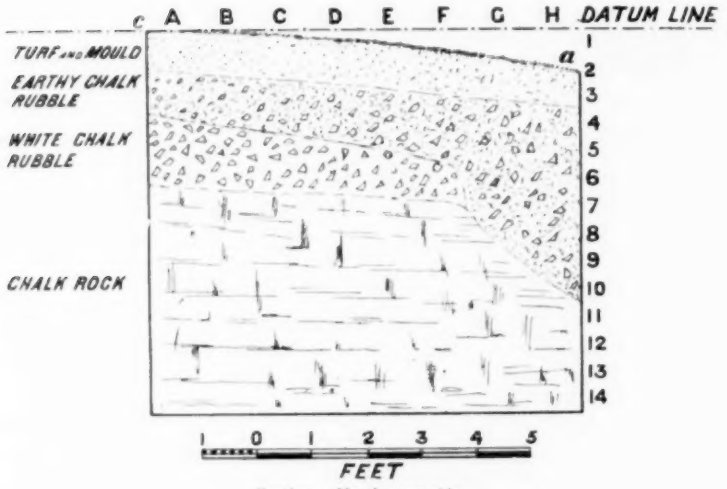
Excavation I.—Figs. 8 and 7.

Immediately beneath the turf and intermingled with its roots, chips and fragments of flint were very abundant, and in addition to these, especially near the monolith, there were considerable quantities of clay-pipe stems, pieces of broken crockery, bottles and glasses, together with pins, buttons, and other rubbish of more or less recent date. This was also the case in all the excavations around the stone. In the other layers, chippings and pieces of all the rocks of

which the stones consist were very numerous, those of the "bluestones," being in excess of those of the sarsens, diabase predominating.



Section. South-east side.



Section. North-west side.

Fig. 8. Excavation I.

Chippings of the "bluestones" and of sarsen occurred together down to the chalk rock. The solid chalk was reached at about 3 feet below the datum line, except in the space left by the falling of the monolith from its upright position.

At a depth of 3 feet 4 inches the north-west side of the monolith was seen to slope away sharply at an angle of about 43 degrees (fig. 11). Beneath this slop-

ing part two blocks of sarsen were exposed, a small one which was removed, and a large one which was subsequently found to extend right across the base, and to have been placed there as a support for the monolith when it was originally erected.

The excavation was carried down to a depth of 7 feet, the lower half being for the most part in the chalk rock.

The chief objects found were:

A Roman coin, a sestertius of Commodus, 8 inches below the turf.

A penny of George III., at the same depth.

In Layer 5, Division CR, a flint hammerstone with edge, fig. 17, *a*.

In Layer 5, Division DR, a splinter of deer's horn embedded in a lump of chalk. This is of considerable importance as evidence of the use of deer's horn picks for excavating the chalk.

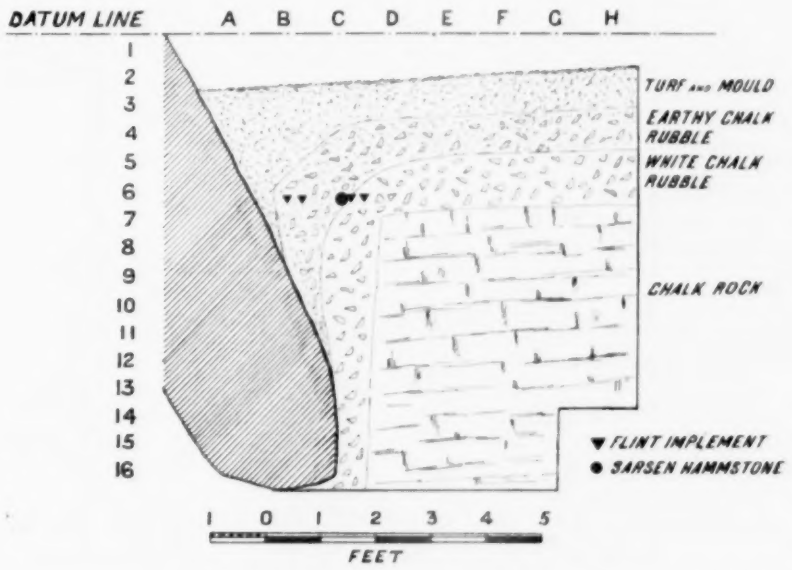
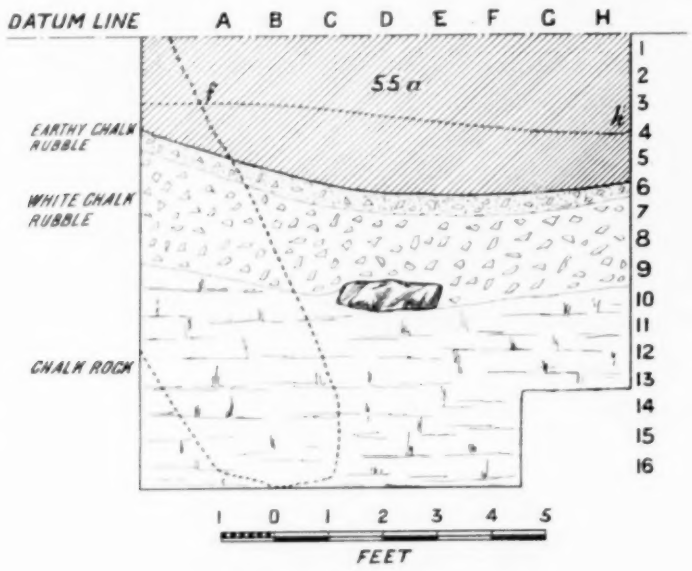


Fig. 9. Excavation II. Section through the middle.

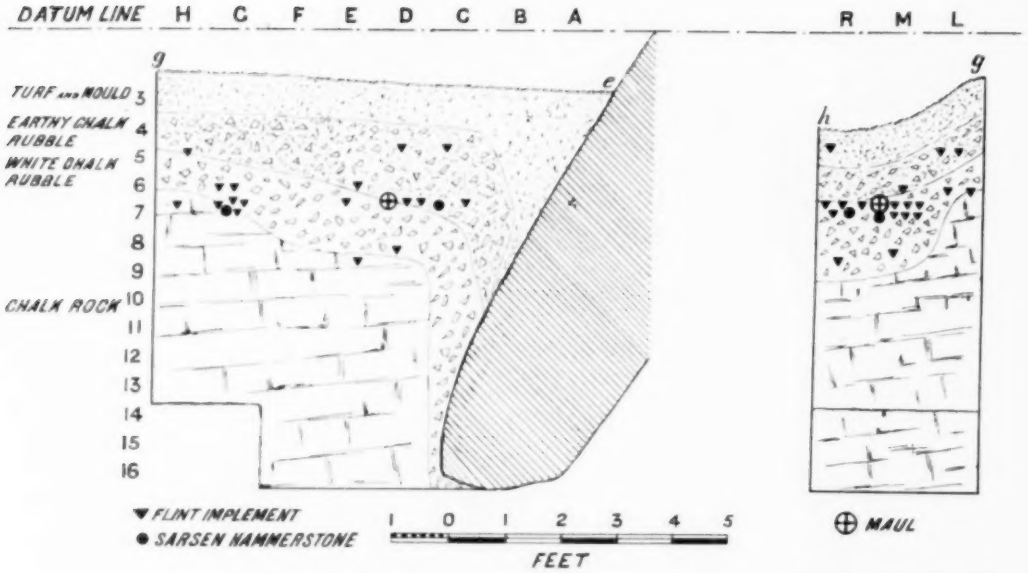
Excavation II.—Figs. 9 and 7.

All the rocks were represented by chippings and fragments, those of the "bluestones" being again in excess of the sarsens. Both kinds occurred together in the layer of rubble overlying the bed rock, and in the same layer there were two edged hammerstones of flint, one of which is illustrated in fig. 14, *e*, two rounded hammerstones of flint, and one of compact sarsen.

This excavation was carried down to a depth of 8 feet, and exposed a further portion of the oblique side of the base of the stone.



Section. South-east side.



Section. North-west side.

Section. South-west end.

Figure 10. Excavation III.

Excavation III.—Figs. 10 and 7. This proved very productive.

Chippings of all the stones were numerous, those of the "bluestones" predominating, and again diabase and sarsen were found together in the layer overlying the solid chalk.

The excavation extended partly under the recumbent stone 55*a*. A large block of sarsen was discovered under this stone. This, it will be shown later, was one of the supporting stones of the monolith before it fell.

The excavation was carried down to a depth of 8 feet 3 inches, at which depth the lowest point of the base of the leaning stone was reached.

The principal objects found were:

A halfpenny of George I., just below the turf.
A Roman coin, a sestertius of Antonia, 10 inches below the turf.
A pewter farthing of James II., at the same depth as the last.

Fig. 11. South-west side of the underground portion of the stone.

Twenty-six axes and edged and rounded hammerstones of flint.
Two hammerstones of compact sarsen, and several pieces of these tools.
One large maul of compact sarsen, weighing 64 pounds 3 ounces.

For particulars of these implements see Appendix, Excavation III.

The underground portion of the "leaning stone" was completely laid bare by these three excavations. It was seen to have a curiously pointed base (fig. 11), the oblique side of which appeared to have a natural and not an artificially worked surface, and was probably the result of a joint in the bed of rock of which the block once formed a part.

The underground face was found to be carefully tooled over its entire

surface, as shown in fig. 28, which represents a part of a large flake that became detached during the operation of raising the stone.

Excavation Q.—Figs. 12 and 7.

This excavation was not made until No. V. was completed, but it will be advantageous to consider it here, as it is so intimately related to No. III. just described, both by position and its large yield of stone implements, and more especially because they together opened up the original site of the base of the now recumbent monolith, No. 55.

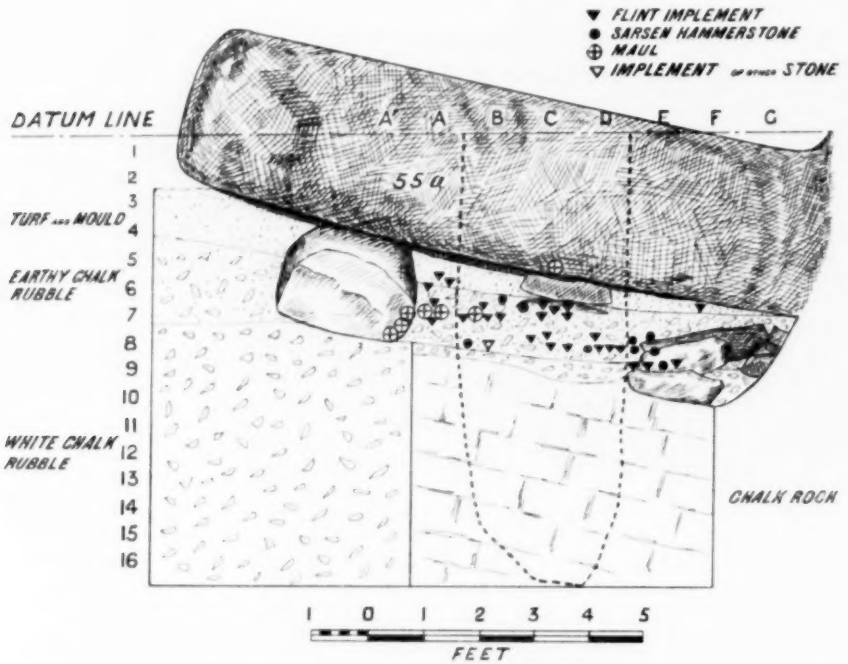


Fig. 12. Excavation Q. Section. South-east side.

The excavation was made entirely under the recumbent stone 55*a*. It extended from the block of sarsen exposed at the south-east end of Excavation V. to a distance of 5 feet 6 inches to the south-west, 5 feet to the south-east measured from the monolith, and to a depth of 8 feet below the datum line.

The recumbent stone was found to be resting about 3 or 4 inches clear of the ground on the sarsen block above mentioned, and another similar one beside it at one end, and on a pile of blocks about 8 feet distant at the other. Several other blocks of the same rock shown in figs. 7 and 12 were also discovered.

The chalk rock was reached at from 4 to 5 feet below the datum line.

Facing the south-east side of the monolith it had been cut away so as to form a sloping wall, the base of which was 1 foot and the upper edge about 2 feet distant from it.

The recumbent stone, No. 55*a*, was found to be carefully tooled over the whole of its under face.

Near the middle there was a very distinct longitudinal rib similar to those on the monolith, No. 59*a*, of the fallen trilithon, showing the manner in which its surface had been trimmed. This face has a slight but distinct curvature or entasis similar to that exhibited by the sides of No. 56, the formerly "leaning stone."

All the rocks of which the stones consist were represented in the excavation by chippings and fragments. Sarsen slightly predominated, and there were many pieces of broken sarsen hammerstones.

In the layer of rubble immediately overlying the chalk rock, diabase and sarsen were found together, and along with them two flint implements. A noteworthy feature of this layer was the occurrence of a large number of splinters of deer's horn.

Layers 7, 8 and 9, yielded the following implements:

Ten axes. Flint.
One axe. Argillaceous sandstone. Fig. 20, h.
Nine hammerstones with edge. Flint.
Four hammerstones rounded. Flint.
Ten hammerstones rounded. Compact sarsen.
Seven large mauls. Compact sarsen. Weights from 36 pounds 2 ounces to 58 pounds 7 ounces.

} See Appendix, Excavation Q.

In addition to the large find of stone tools, another important result of this excavation is the discovery of the blocks of sarsen mentioned above, from which we learn how the stone No. 55 was secured in an upright position after it had been erected.

No well-defined cutting in the chalk to indicate the original position of the base of this stone was seen except the shallow cavity shown in fig. 12, from which a block of sarsen was removed. The blocks of sarsen, too, on the south-west of the excavation were rather confusedly jumbled owing to their displacement by the falling of the stone. But there cannot be the slightest doubt that they formed the packing of the back of its base, and the two larger blocks and the stone mauls that of the front. The base must therefore originally have occupied the space

between them, and this would bring this upright of the trilithon into line with its companion, No. 56.[a] When the stone No 55 fell it seems to have jumped in a south-west direction, so that its lower half now lies over the cavity in which it once stood.

If we now refer to fig. 7, a striking feature of the Excavations III. and Q is manifest, viz. that all the tools found, with but few exceptions, occurred in them, either in or near the cavity occupied by No. 55 before its fall. They had doubtless been thrown in around this stone when it was being set up, the mauls having been wedged in below the front of its base to act together with the large blocks of sarsen as supports.

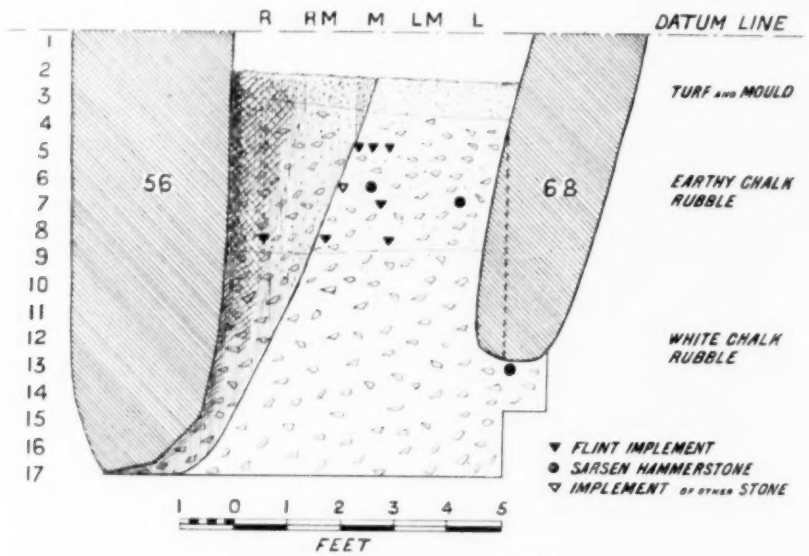


Fig. 13. Excavation V. Transverse section.

Excavation V.—Figs. 13 and 7.

This was begun after the leaning stone had been set upright to the south-west. The whole of the ground was of an entirely different character from that on the opposite side of the monolith. The chalk rock was found to have been entirely dug away and removed for a distance of at least 6 feet from the base of the stone, and to a depth of 7 feet at the west corner of the excavation, and of 11 feet at the south-east end. Why this was done it is difficult to conjecture.

The material filling the cavity consisted in the upper layers of chalk rubble

[a] See fig. 12, in which the position of No. 56 is indicated by a dotted outline.

more or less mixed with mould, and in the lower layers of white chalk rubble, but there was no distinct line of demarkation between them. The base of the monolith at its lowest point, 8 feet 3 inches below the datum line, was found to be resting on a ledge of chalk rock, the exact breadth of which could not be determined, as the rock at its edge passed imperceptibly into very hard chalk rubble. It did not, however, probably extend further than 1 foot 6 inches beyond the front of the stone, that being the breadth of the rock exposed in Layer 14, Division HR.

An important feature of this excavation was the very small quantity of chippings of the stones which occurred in it as compared with the Excavations I., II., and III. at the back of the monolith. The chippings, too, were chiefly found in the south-east half. They comprised all the rocks, and pieces of broken sarsen hammerstones were unusually abundant.

The "bluestone" monolith, No. 68, was exposed down to its base, which was reached in Layer 13 at a depth of 6 feet 3 inches below the datum line. Immediately beneath its lowest point a rudely trimmed sarsen hammerstone, fig. 20, *g*, was found.

In Layer 14, Division AM, an important find was made, viz. a flat rectangular piece of sarsen, measuring about 7 inches by 6 inches by 2½ inches, with one of its surfaces tooled as fig. 28, and having on the other a very small thin stain of copper carbonate.

In Layer 5 the end of a very large block of sarsen projecting from beneath the recumbent stone, 55*a*, was laid bare (figs. 7 and 12). The purpose for which this block originally served has already been pointed out.

Of the other objects found the following are the chief:

Four axes. Flint.	
One axe. Compact sarsen.	
Three hammerstones with edge. Flint.	See Appendix, Excavation V.
One hammerstone. Sarsen.	
One hammerstone. Diabase.	

From the nature of the section of the ground revealed by this excavation, and by Excavations I., II., and III. on the opposite side of the base of the stone, we are led to the irresistible conclusion, the importance of which will be evident later, that this monolith was originally set up by raising it from the interior of the circle.

No absolutely conclusive signs of the Duke of Buckingham's digging, said

to have caused the fall of the great trilithon in 1620, were observed.[a] But in Excavation V., in front of the leaning stone, the ground was seen to have been disturbed to a depth of about 3 feet; the chalk rubble being more mixed with earth than elsewhere, it is hence not impossible that some one might have dug there. The excavation could not have been carried to a much greater depth, otherwise the "bluestone," No. 68, would have been overthrown. It might, however, have extended to the front of the now recumbent stone, No. 55, as the two large blocks of sarsen which acted as the supports of this stone on that side had the ground entirely cut away from above and almost completely from around them. Any attempt to raise or dislodge these blocks would certainly have caused the fall of the monolith.

From the position of the impost as it now lies it would seem that No. 55 was the first to topple, and in its fall it dragged over the other upright of the trilithon, the hitherto "leaning" stone. The complete prostration of the latter was, however, checked partly by the "bluestone" upright No. 68, but chiefly by the great depth to which its base was buried in the ground.

Objects found in the Excavations.

We will now proceed to the consideration of the objects found in the excavations. They comprise chippings and lumps of the stones, stone tools, bones, and a few coins and fragments of pottery. The chippings and pieces of stone are those which had been detached from the stones and the tools during the operations of shaping and dressing. They were found in very large quantities. All the varieties of rock, of which the sarsens and "bluestones" consist, were, as we have already seen, represented, and there was an exceptional quantity of the soft "fissile rock" and of porphyrite considering the few remains of stones of those materials now existing.

Chippings of diabase were more abundant than those of any of the other rocks; there were, however, but few large pieces of it. Sarsen, on the other hand, occurred most abundantly in lumps.

In the excavations on the south-west side of the stone and in VI. and Q, sarsen and diabase were always found together even in the layer overlying the bed rock. On the north-east side diabase chips were somewhat fewer, and pieces of sarsen occurred at lower depths than they.

[a] In a paper, "Stonehenge: an Enquiry respecting the Fall of the Trilithons," in *Man*, 1902, No. 97, Mr. A. L. Lewis adduces evidence to show that the trilithon, of which the "leaning stone" is one of the piers, had fallen before this date.

The soft "fissile rock" is only represented now by the weathered stump mentioned above. But this rock is so easily disintegrated by the action of rain and frost that any stones consisting of it would soon have been destroyed, and hence it may be that this stump is all that is left of them. The amount of chippings would seem to indicate that originally there were several, and it is just possible that other stumps may exist below the ground. Their absence may also be accounted for by their removal for utilitarian purposes, when Stonehenge had lost its sacred character, in preference to the other stones, owing to the ease with which they could be worked.

In all the excavations sarsen and diabase occurred in the largest quantities. The other rocks were also distributed more or less uniformly through most of the layers, but in very varying proportions.

Chippings of a hard compact rock, which cannot, as yet, be referred to any of the existing stones, were also found, but only in small quantities.

It has been suggested that these chippings and lumps may be those left by despoilers from the trimming of stones which they removed.

But if this were true, then they should only have occurred in the surface layers, or at but little below them, and not at the depths at which they were found. It may be remarked further that the Excavation F at the side of the upright, No. 54, of the south trilithon also shows this suggestion to be untenable, for here, down to the depth examined, 4 feet below the turf, they were found, together with large blocks, to form the chief material which had been filled in against the side of the stone, doubtless to afford a more substantial support for it than mere earth or rubble.

That this filling was not of modern date is proved by the incrustation on many of the pieces by which, in fact, some were cemented together.

The Stone Implements.—More than a hundred stone implements were found, and the greater number occurred in the stratum of chalk rubble which either directly overlaid or was on a level with the bed rock.

They may all be arranged in four principal classes, between which, however, there is not in all cases a very distinct line of demarkation. Even in the same class, especially in Classes I. and II, some examples present wide differences from others, but on careful examination many intermediate links will be found by which they are connected.

The numerals and letters by which they are designated in the following enumeration and elsewhere in the Paper indicate their positions in the ground

excavated. Thus for example, III. 7 AR denotes that the implement bearing that mark was found in Excavation III., Layer 7, and Division AR.

These positions, as we have already seen, are projected on the plan (fig. 7) and into a section of each excavation (figs. 8, 9, 10, 12, 13, and 29).

Class I.—Axes roughly chipped and of rude forms, but having well-defined, more or less sharp cutting edges.

This class may be conveniently divided into two sub-classes, A and B, the implements in the former being characterised by a much greater length in proportion to their breadth than those in the latter.

Fig. 14. Flint Implements found in the Excavations.
a, b, c, d. Class I. A.
e. Class II.

A.

III. 7 AR. Fig. 14, *a*.
V. 5 A'AM. Fig. 14, *b*. } Chief typical forms.
Q. 8 CM. Fig. 14, *c*.
VIII. 2 FR. Rude. Similar to fig. 14, *b*.
III. 7 GM. Very rude.
III. 5 DL. Very rude.
V. 7 A'AM. Fig. 14, *d*.
III. 7 GM. Well chipped but unfinished axe. Fig. 17, *f*.

Fig. 15. Flint Implements found in the Excavations.
Class I. B.

B.

Q. 8 DR. A typical form. Fig. 15, *a*
Q. 7½ BM. Fig. 15, *b*.
Q. 9 EL. Fig. 15, *e*.
VI. 7 DL. Fig. 15, *d*.
Q. 8 BM. Argillaceous sandstone. Fig. 20, *h*.
Q. 8 CM. Fig. 17, *c*.
III. 7 DM. Fig. 15, *c*.
Q. 6½ AM. Very rude. Resembling fig. 15, *c*.
III. 9 ER. Very rude. Resembling fig. 16, *c*.
Q. 7½ BL. A typical form. Fig. 16, *b*.
Q. 7 CL'. Fig. 17, *d*.
III. 7 GM. A typical form. Fig. 16, *a*.
VIII. 2 FR. Very rude. Resembling fig. 17, *d*.
V. 6 GRM. Very rude and thin. Compact sarsen.
III. 7 DM. Double edged. Fig. 16, *e*.
VI. 6 CM. Very rude. Compact sarsen.
Q. 7 AM. Similar to fig. 17, *d*.
Q. 7 FM. Similar to fig. 15, *b*.

All the above are flint, except V. 6 GRM, Q. 8 BM., and VI. 6 CM.

Class II.—Hammerstones, with more or less well-chipped sharp curved edges. Most may be correctly termed hammer-axes. They are chipped to an edge at one end, but at the other are broad and thick, and in many examples terminated there by a more or less flat surface. In some the natural coating of the flint is left untouched at the thick end.

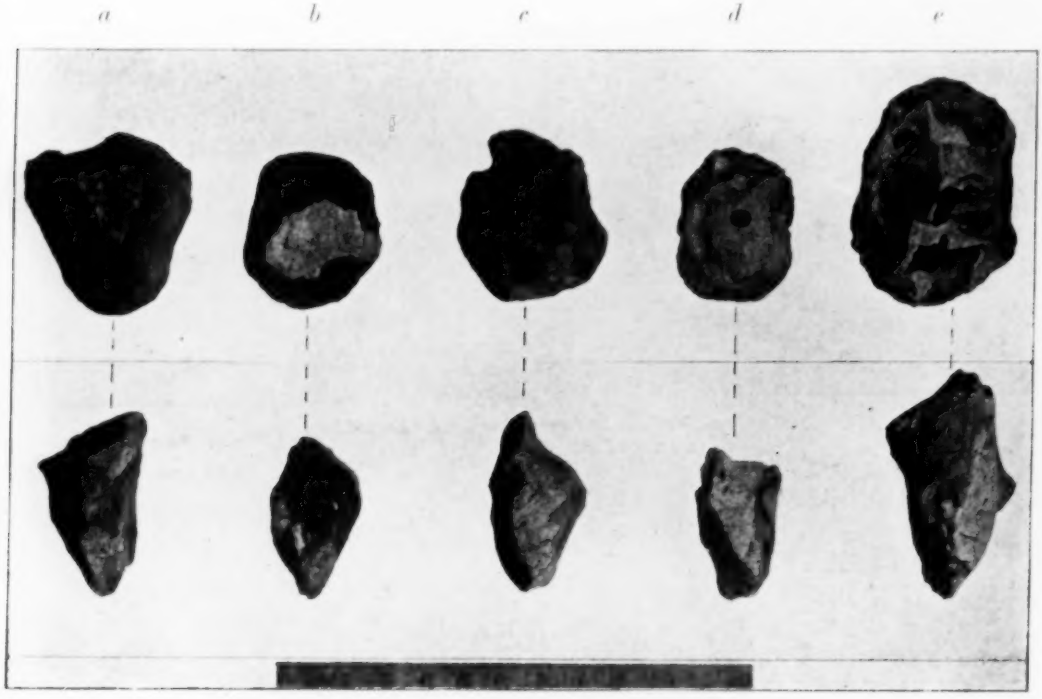


Fig. 16. Flint Implements found in the Excavations.
a, b, and c. Class I. B.
c and d. Class II.

Q. 7½ BM. Natural surface of the flint left unchipped towards the butt end.
III. 7 GR. Natural surface of the flint left unchipped towards the butt end.
III. 7 CR. Natural surface of the flint left unchipped towards the butt end.
} Similar to fig. 16, *c*.

IV. 3 R. Principal typical form. Fig. 16, *c*.
III. 6 GL. Large 5·5 inches × 5·5 inches. Similar to fig. 16, *c*.
Q. 8 CM. Similar to fig. 16, *c*.

V. 8 AM.
Q. 8 DL.
Q. 7½ CL.
Q. 7½ AL. } Similar to fig. 16, *c*, but thicker at butt end.

Q. 7 CL″. Similar to fig. 16, *c*, but very short in proportion to breadth.
VIII. 5 FL. Similar to fig. 16, *c*, but very short in proportion to breadth.
Q. 7 CL′. Similar to fig. 16, *c*, but very short in proportion to breadth.
III. 7 HM. Similar to fig. 16, *c*.
III. 6 EM. Fig. 17, *e*.
III. 5 HR. Similar to fig. 16, *c*.

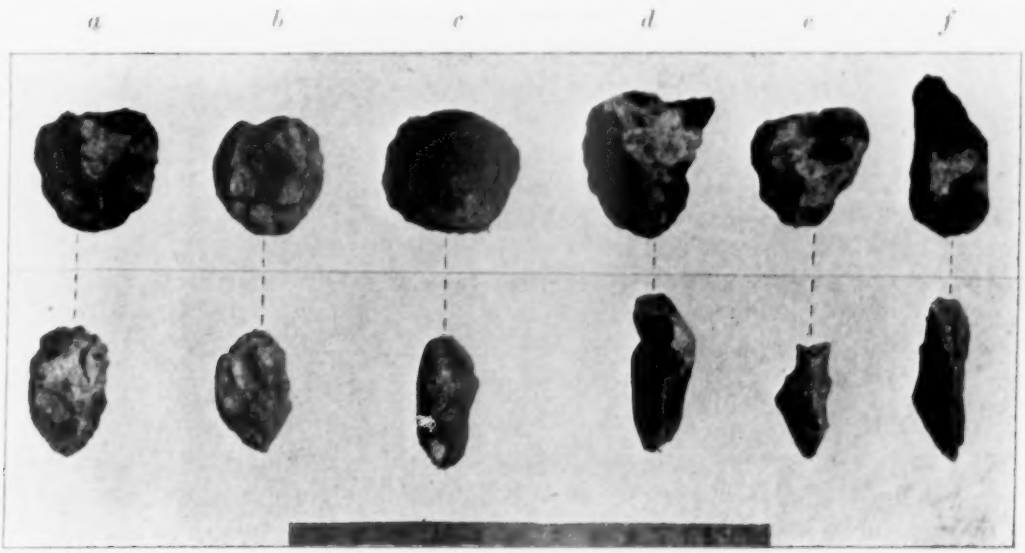


Fig. 17. Flint Implements found in the Excavations.
f. Class I. A.
c and *d*. Class I. B.
a, *b*, and *e*. Class II.

Q. 9 EL. Much broken.
A. Similar to fig. 17, *a*. Found in Excavation A.
V. 5 AM. Small. Similar to fig. 16, *c*.
V. 5 A′AM.
V. 8 ARM.
VIII. 7
III. 6 GL.
III. 4 HR.
V. 8 HR. } Similar to fig. 17, *e*.

I. 5 CR. A typical form. Fig. 17, *a*.
III. 7 EM. Fig. 17, *b*.
II. 6 BM. Similar to last.
VI. 3 EM. Similar to fig. 14, *e*.
II. 6 BM. Fig. 14, *e*.
Q. 8 CM. Similar to fig. 14, *e*.
III. 8 DM. Fig. 16, *d*.

Class III.—Hammerstones, more or less rounded. Flint. Some specimens appear to have once had distinct working edges, but they are now much blunted and battered by use.

III. 5 CL. Fig. 20, *d*.
Q. 6 AL. Similar to fig. 20, *d*.
II. 6 CM. Similar to fig. 20, *d*, but more rounded.
II. 6 CM. Similar to fig. 20, *d*, but more rounded.
Q. 6 AL. Similar to fig. 20, *d*.
Q. 7½ BM. Similar to fig. 20, *d*.
Q. 7 CL'. Fig. 20, *e*.
Q. 8 DL'. Similar to fig. 20, *d*.
Q. 8 DL. Similar to fig. 20, *d*.

All the implements in the above classes, with the exceptions mentioned, are of flint, and nearly all from their forms have been used by grasping them in the hand without the intervention of a haft or shaft. As to their use, they were not suitable for shaping or dressing the harder sarsen or the diabase blocks, as flint is much too brittle a material for that purpose. But for dressing the softer sarsens and especially the more easily worked fissile stones, they were perfectly adapted, and were doubtless used for that purpose. Nearly all bear evidence of extremely rough usage, their edges being jagged and broken, just as we should expect to find after such rough employment. Moreover, the severe fractures which some exhibit could only be produced by violent contact with other stones. The larger tools may also have served to excavate the chalk where too hard for the deer's horn picks, and others for the general needs of savage life.

All, notwithstanding their rudeness, are undoubtedly finished implements which have been in actual use, and not implements which have been discarded in the process of manufacture.

I insert here figs. 18 and 19,[a] representing similar flint implements which were found at Cissbury,[b] by the late General Pitt-Rivers; at Grime's Graves,[c] near Brandon, Norfolk, by Canon Greenwell; and at Stourpaine, near Blandford, Dorset, by Mr. Durden.

Fig. 18. Flint Implements of similar forms to those found at Stonehenge.
a. From Grime's Graves.
b and *f*. From Stourpaine.
c, *d*, and *e*. From Cissbury.

If we now compare the Stonehenge implements of the above classes with these it will be seen that many are very closely allied to them in form and some

[a] I am indebted to the courtesy of my friend our Secretary, Mr. C. H. Read, Keeper of British and Medieval Antiquities in the British Museum, for permission to make the photographs from which these figures are taken.

[b] *Archæologia*, xlii. 53 *et seq.*

[c] *Journal of the Ethnological Society of London*, 2nd series, ii. 419 *et seq.*

are practically counterparts. A very close resemblance is especially evident in the following examples:

CLASS I.

Stonehenge implement,		fig. 14, *a*,	and	Stourpaine implement, fig. 18, *b*. Cissbury implement, fig. 18, *c*.
Do.	do.	fig. 17, *c*,	and	Cissbury implement, fig. 18, *e*.
Do.	do.	fig. 16, *b*,		Stourpaine implement, fig. 19, *m*.
Do.	do.	fig. 17, *f*,	and	Cissbury implement, fig. 19, *g*.
Do.	do.	fig. 15, *a*,	and	Stourpaine implement, fig. 18, *f*. Stourpaine implement, fig. 19, *k*.

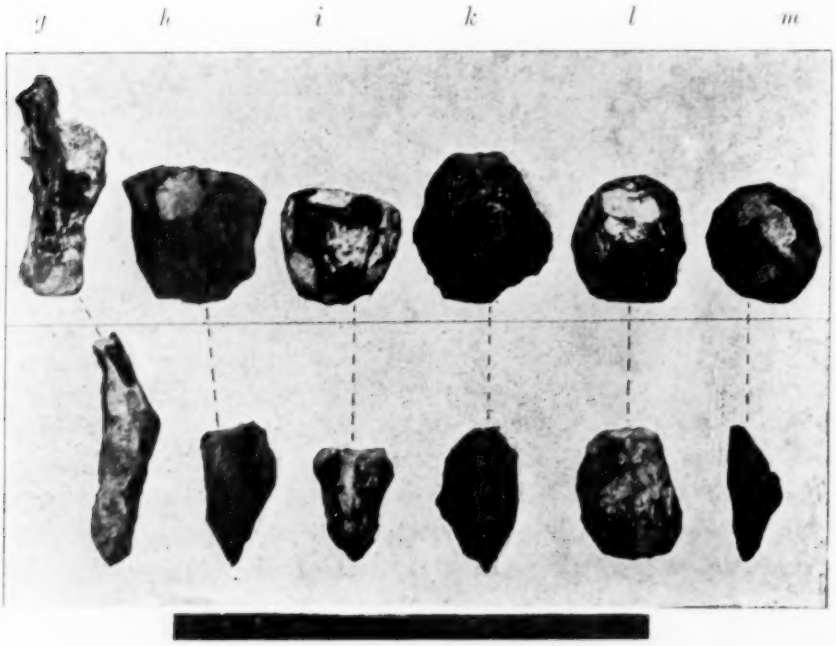


Fig. 19. Flint Implements of similar forms to those found at Stonehenge.
g. From Cissbury.
h. From Grime's Graves.
i, *k*, *l*, and *m*. From Stourpaine.

An implement precisely similar to fig. 14, *a*, was found by Dr. Smart at Ore, near Hastings,[a] and several at Grime's Graves[b] by Canon Greenwell.

[a] *Sussex Archæological Collections*, xix. 53, plate, fig. 1.

[b] *Op. cit.* Pl. xxviii. figs. 4 and 5.

CLASS II.

Stonehenge implement, fig. 16, *c*, and Cissbury implement, fig. 18, *d*.
Do. do. fig. 16, *d*, and Stourpaine implement, fig. 19, *i*.
Do. Several not illustrated and Grime's Graves implements, figs. 18, *a*, and 19, *h*.

CLASS III.

Stonehenge implements, fig. 20, *d* and *e*, and Stourpaine implement, fig. 19, *l*,

The Cissbury implements, of which a great many were found, were attributed by General Pitt-Rivers "to the Stone Age or at any rate to the age of the flint manufacture." The fauna associated with them was undoubtedly neolithic.

The implements from Grime's Graves were found in the field immediately adjoining to the pits, and according to Canon Greenwell "in them we have the result, to some extent, of the operations of the people who quarried the flint" in the so-called "Graves." In the pit explored by him the chalk had been excavated with deer's horn picks, many of which were found closely resembling that discovered at Stonehenge. As regards the age of the pits Canon Greenwell is of the opinion that they are neolithic, or, at any rate, not of the fully developed Bronze Age, for the following reasons: "The quantity of flint that has been obtained from the pits at Grime's Graves is so great, and the supply of material for implements was so very large, that it is difficult to understand how operations on a scale so extensive could have been required when the use of stone must have been to a great extent superseded by metal. During the time when both metal and stone were in use, flint was required more for smaller weapons, such as arrow points, and for articles like scrapers, saws, and knives, than for larger implements such as hatchets."

The importance of this comparison of the implements found at Stonehenge with those from the localities cited is obvious. It tends to demonstrate, in my opinion, that the Stonehenge implements are not far removed in time from the others, and hence belong to an age antecedent to the full development of the use of bronze if not to the neolithic age itself.

CLASS IV.—Hammerstones more or less rounded. Fig. 20. These hammerstones, of which about thirty were found, require but little description. They

almost all consist of large pebbles or small boulders of the hard quartzite variety of sarsen although one or two are pieces which have been detached from sarsen blocks.

Some, as fig. 20, *f* and *i*, have been roughly broken into convenient forms for holding in the hand, whilst a few have been rudely trimmed into more regular

Fig. 20. Stone Implements found in the Excavations.
b. Class I. B. Argillaceous sandstone.
d and *e*. Class III. Flint.
All the others are of Class IV. and consist of compact sarsen.

shapes, as for example *g*. They vary in weight from about a pound up to six and a half pounds.

VI. 4 DL. Weight 9½ ounces.
V. 7 CL. Weight 12 ounces.
Q. 7 CL′. Weight 11 ounces.
VII. 2 BM. Weight 14 ounces.
VI. 7 DL. Weight 14¼ ounces. Fig. 20, *k*.
III. 7 GR. Weight 15½ ounces.

C. Weight 15½ ounces. Found in Excavation C.
Z. Weight 1 pound 2½ ounces. Fig. 20, *g*. Found in Excavation V.
F. Weight 1 pound 2½ ounces. Fig. 20, *c*. Found in Excavation F.
E. Weight 1 pound 3 ounces. Found in Excavation E.
Q. 8½ EL. Weight 1 pound 3 ounces.
III. 7 CM. Weight 1 pound 3 ounces. Fig. 20, *i*.
VIII. 5 FR. Weight 1 pound 4 ounces.
Q. 8 M. Weight 1 pound 5 ounces.
VIII. 5 F.R. Weight 1 pound 4½ ounces.
Q. 8½ ER. Weight 1 pound 6 ounces.
Q. 8 EM. Weight 1 pound 7 ounces. Fig. 20, *f*.
Q. 8 BM. Weight 1 pound 10 ounces.
Q. 7 BL. Weight 1 pound 12 ounces. Fig. 20, *b*.
Q. 7 DL. Weight 2 pounds 10 ounces.
Q. 8 DL′. Weight 3 pounds 12 ounces. Fig. 20, *a*.
III. 7 GR. Weight 3 pounds 15 ounces.
II. 6 CL. Weight 4 pounds.
VII. 2 DM. Weight 5 pounds 11 ounces.
V. 6 AM. Weight 6 pounds 7 ounces. Diabase.

These rude hammers were undoubtedly employed, as we shall see later, in producing the fine pitted markings which the finished surfaces of the sarsen stones present.

Class V.—Mauls, a more remarkable kind of hammerstone than those just enumerated.

The following eight were all found either on or in the immediate proximity of the original site of the base of the recumbent stone No. 55A See figs. 7, 10, and 12.

Q. 7 A′M. Weight 36 pounds 2 ounces.
Q. 7 A′L′. Weight 43 pounds 6 ounces.
Q. 7 AM. Weight 44 pounds 2 ounces. Fig. 21, *a*.
Q. 7½ BL. Weight 45 pounds. Fig. 22, *a*.
Q. 6 CL‴. Weight 46 pounds.
Q. 7 A′L′. Weight 46 pounds 15 ounces. Fig. 21, *b*.
Q. 7 AL″. Weight 58 pounds 7 ounces.
III. 7 DM. Weight 64 pounds 3 ounces. Fig. 22, *b*.

They are ponderous boulders of the quartzite variety of sarsen with their broadest sides more or less flat.

On their narrower sides most have two distinct working faces, but one has

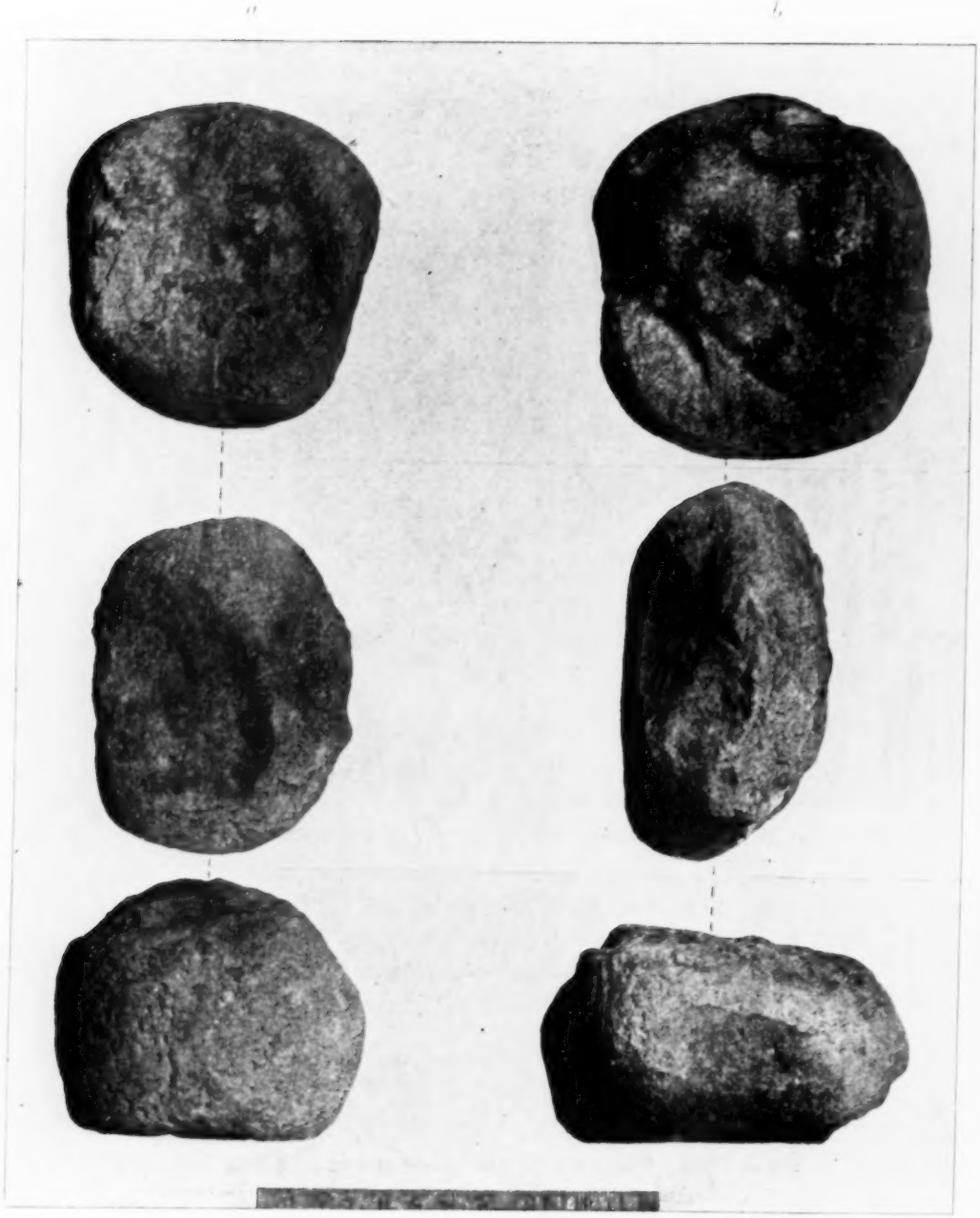


Fig. 21.—Stone Implements found in the Excavations.—Class V.—Mauls.

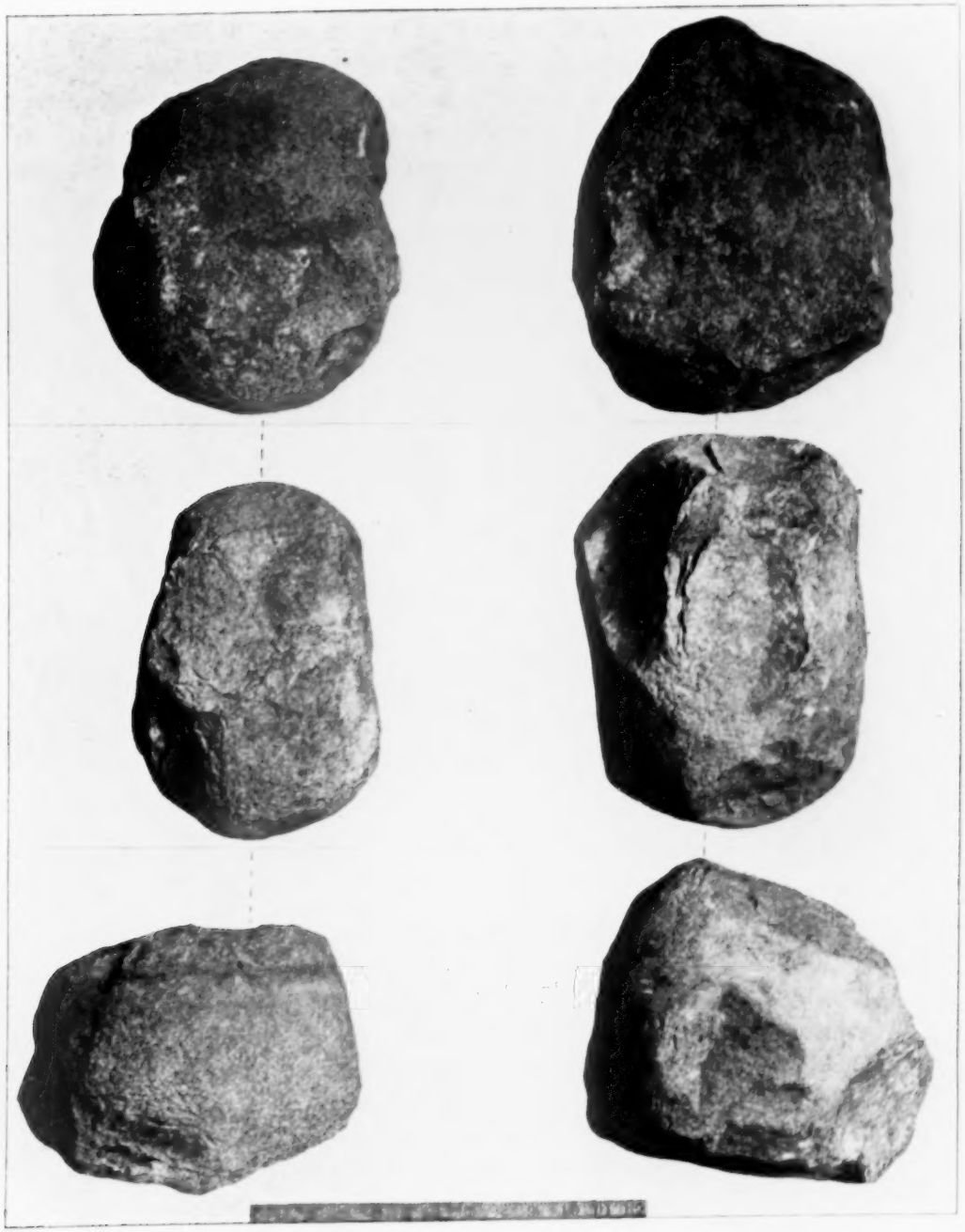


Fig. 22. Stone Implements found in the Excavations. Class V. Mauls.

been repeatedly turned round in its holder during use, so that it has become almost spherical in shape.

There is no well cut groove around the middle of any, but all have been roughly chipped, or present natural inequalities there, so as to allow of their being secured by bands of twisted osier or hazel twigs or by strips of hide in order that they might be used by two or more men. It may be that they were fitted with handles for directing the blow and ropes for lifting them as is the practice in Japan for the heavy wooden mauls (fig. 23) employed there for beating down the foundation stones of houses.

Fig. 23. Heavy maul as used in Japan.

As regards the uses to which they were applied, it will be evident, from what will be advanced later, that they were employed not only for roughly breaking the rude blocks into regular forms but also for working down their faces to a level or slightly curved surface.

The boulders of which they consist were apparently derived from a stratum of the quartzite variety of sarsen, about 7–9 inches in thickness, which occurred in the sandstone beds that once overlaid the chalk of the district.

The weights of these large stone mauls range from 43 pounds 6 ounces to 64 pounds 3 ounces, with one exception which only weighs 36 pounds 2 ounces.

Similar mauls have been found in the ancient copper mines at Llandudno and near Lake Superior, but none of these exceeded 40 pounds in weight.

The whole of the implements in the preceding lists must unquestionably be regarded as the discarded tools of the prehistoric builders of Stonehenge. Rude as they are they are nevertheless most efficient work tools, and with them the megalithic blocks of the structure were undoubtedly shaped and trimmed.

Perhaps the most striking features of the flint implements is their extreme rudeness, and that there is not a single ground or polished specimen among them. This, at first sight and without due consideration, might be taken to indicate an extremely remote age. But in this connection it must be borne in mind that in the building of such a stupendous structure as Stonehenge the tools required must have been numbered by thousands. The work too was of the roughest character, and for such only rude tools were required. The highly finished and polished

Fig. 24. Deer's horn pick found at Stonehenge. (¼ linear.)

implements which we are accustomed to consider, and rightly so, as characteristic of neolithic man, would find no place in such work. They required too much labour and time for their manufacture, and, when made, could not have been more effective than the hammer axes and hammerstones found in the excavations, which could be so easily fashioned by merely rudely shaping the natural flints, with which the district abounds, by a few well directed blows of a sarsen pebble.

These implements can therefore, I think, notwithstanding their rudeness, be legitimately placed in the neolithic age and, it may be, near its termination.

Bones.—As regards the bones, they are only the bones and teeth of domestic animals, horses, oxen, sheep, goats, pigs, and dogs, and of rabbits and deer, not calculated to afford any evidence as to the date of Stonehenge.

Of considerable importance, however, are the splinters of antlers of deer

which occurred in most of the excavations, especially in Q, where they were found along with the stone tools, as they would seem to indicate that antlers were utilised as picks in digging the holes for the stones.

And, indeed, a portion of a large antler (fig. 24), with its lowest tine worn away apparently by such use, was found in the rubble immediately above the chalk at a depth of 5 feet 8 inches below the surface of the ground in Excavation VIII.

In this connection it may be remarked that all the digging required even in the chalk was perfectly possible with such implements, aided it may be by some of the larger flint tools.

*Coins.**—These are of a very miscellaneous character, and all, even the Roman coins, were only found in the superficial layers. Enumerating them in the order of their dates they are as follows:

Excavation III. 5 CM. 10 inches below the surface.

A Sestertius of Antonia, mother of Claudius (?) and daughter of Marcus Antonius and Octavia. Her head is on the obverse, and on the reverse a figure of Claudius, her husband.

Excavation I. 2 HL. 8 inches below the surface.

"Large Brass" or Sestertius of Commodus, with figure of "Nobilitas" on the reverse. Struck A.D. 187.

Excavation V. 4 HM. 12 inches below the surface.

A coin, may be a "ticket." Roman or early Anglo-Saxon. If the latter it would be an ornament.

Excavation III. 5 DM. 10 inches below the surface.

Pewter farthing of James II. (1685-1688).

Excavation III. 4 HR. Just below the turf.

Halfpenny. George I. Struck 1722.

Excavation Q. Surface layer.

Halfpenny. George II.

Excavation I. 3 BM. 8 inches below the surface.

Penny. George III.

* I am indebted to my friend Mr. H. A. Grueber, F.S.A., of the British Museum, for the identification and description of these coins.

The Erection of Stonehenge.

Transport of the Stones.—Our special concern will now be to see how the stones could have been brought to Stonehenge, the manner in which they were shaped, and the means adopted for setting them up. For these ends no elaborate engineering appliances were required, neither was a knowledge of metals necessary. All the operations could be efficiently carried out with tools of stone and deer's horn, trunks of trees, and ropes of hide.

As regards the working and erection of the stones, the excavations have yielded sufficient material to make clear to us, generally, the manner in which these operations were performed, although some minor points still remain shrouded in obscurity.

On the other hand, as regards the transport of the blocks, they throw but little light. For the solution of this problem we have, therefore, to turn to the examples of similar work in countries where primitive methods for moving heavy bodies are still, or have been recently practised.

In Japan, where megalithic remains abound, and where the use of rude massive stones was common almost up to our own times, and even now is occasionally seen, enormous blocks were transported for considerable distances without the aid of any appliances which were beyond the reach of the men of the neolithic age.

In the walls of the Castle of Ôsaka, built in the seventeenth century, there are several enormous stones, the largest of which measures 40 feet by 10 feet by at least 5 feet, and must weigh more than 160 tons.

A picture painted in the eighteenth century, which I have seen, represents the transport of one of these stones. In it the stone is represented resting on a low frame of massive timbers fitted with rude solid wheels of wood. This is being hauled by a vast number of men by means of huge cables to which numerous small ropes are attached.

In other cases a number of rollers were substituted for the wheels, and this method I have seen in operation.

The block is placed on the frame by first raising it to the required height by the application of long wooden levers to either end alternately, and packing it up with timber as it is being raised. The frame is then slipped under it and the packing removed.

The illustration of the transport of a colossus (fig. 25[a]), which was discovered on the wall of a tomb of the twelfth dynasty at El Bersheh is specially worthy of note here, as it shows that a precisely similar method, but without the use of wheels or rollers for the frame, was practised in Egypt.

Another method which is illustrated in Plate V.[b] may be seen in use everywhere in Japan and in China for carrying about stones and timber of much greater weight than the bluestones. In some of the hill districts in India stones of 20 tons weight are thus carried. The huge block which is the pedestal of a tombstone is pierced with a central hole so that a strong beam of timber passed through it is all that is required for the attachment of the bearing poles.

Generally, however, several horizontal beams are lashed to the stone, and to

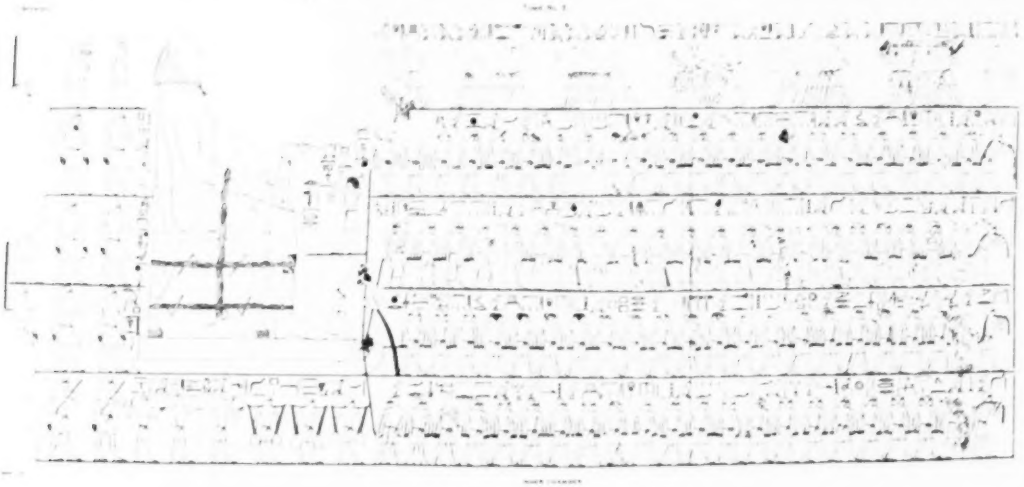


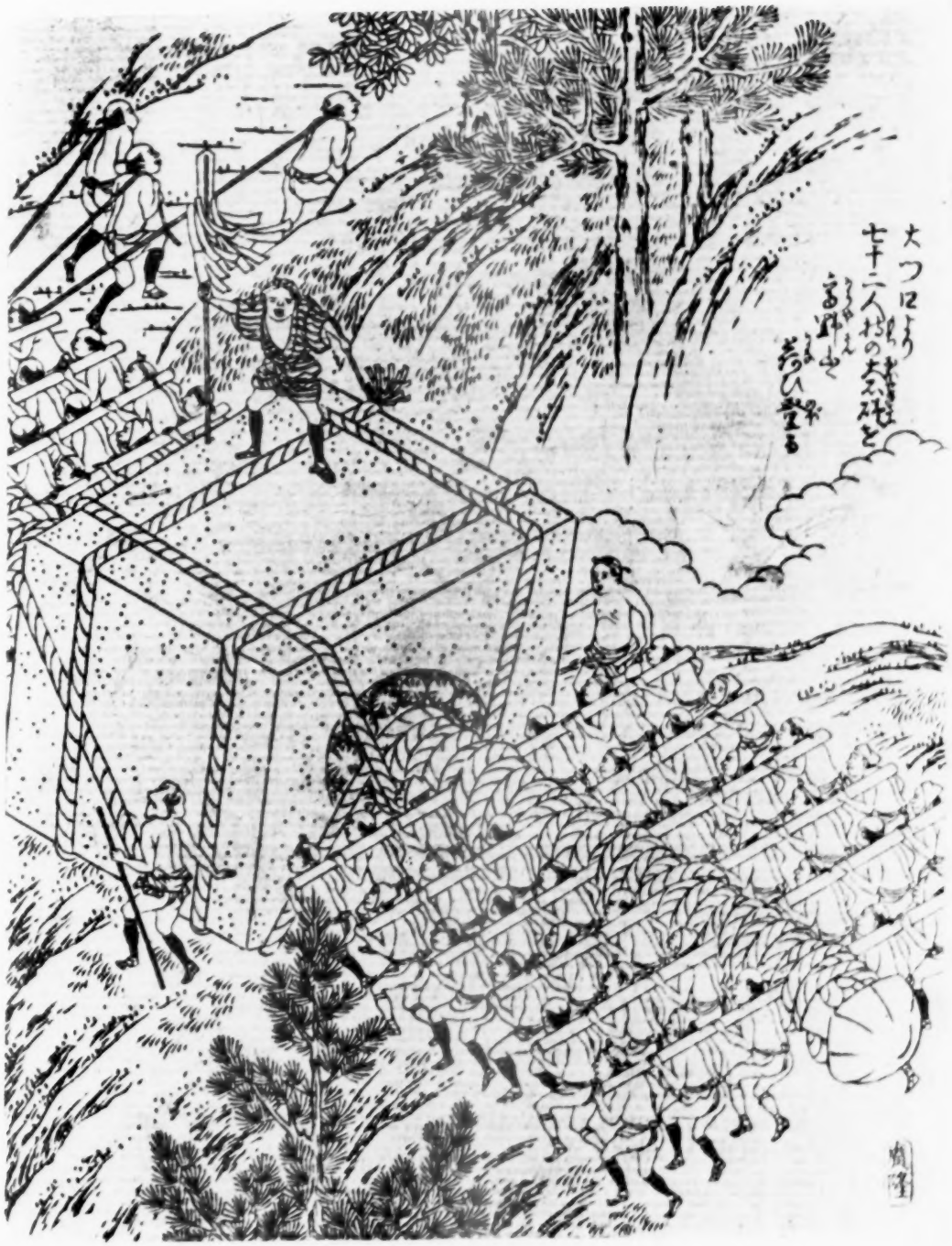
Fig. 25. Transport of a colossus. Egypt.

these, at intervals of about two or three feet, transverse poles are fastened, of sufficient length to accommodate the shoulders of from two to three or more men at each side in the manner shown in the figure. The men keep time by shouting simultaneously at each step, and in this they are guided by the man standing on the stone waving his wand.

Any of the methods I have described were perfectly possible to the builders of Stonehenge, and it is in the highest degree probable that the same or

[a] Copied by permission of the Egypt Exploration Fund from Memoir III. of the Archæological Survey of Egypt, *El Bersheh*, pt. I. pl. xv.

[b] *Kunst-Kunst Museum Zeug*, 1851, iv.



TRANSPORT OF A HUGE BLOCK OF STONE FROM A JAPANESE DRAWING.

Published by the Society of Antiquaries of London, 1902.

similar methods were employed by them for the transport of the stones from the places where they were found.

And in this connection it must not be forgotten that all the stones of Stonehenge occurred in its neighbourhood, within a radius of not many miles, as has already been pointed out, and had not to be brought from a distant locality.

Shaping and Dressing the Stones.—In this connection it is necessary to remember that the sarsens, of which the outer circle and the trilithons consist, occur naturally in more or less flat tabular blocks; usually of much greater length than breadth, and generally ranging in thickness from about 2 to 4 feet. On their surfaces they are often soft and friable whilst in the middle they are dense and hard.

No single stone is of uniform hardness; some parts may be so soft that they can be rubbed away with the fingers, others so hard that they resist chipping with a steel chisel.

Originating as concretions in a bed of sand they had somewhat curved outlines, and usually one face, the under face, retained a more marked convexity than the other.

From what has just been stated it follows that as a rule but little material would have to be removed from their broad faces to reduce them to the symmetrical forms seen at Stonehenge.

To break off large pieces from their sides and ends was not a matter of great difficulty. It was probably accomplished by lighting strips of wood along the line where the fracture was desired; pouring cold water on it when sufficiently heated and then pounding the part to be detached with the heavy stone mauls. Pieces of considerable size could also be readily broken off by the use of the mauls alone. I may mention here that the line of holes seen on the upper side of stone No. 95, cut across one of its corners (fig. 26), is not, I think, contemporaneous with the erection of the circles, but of much later date, as the holes show but little signs of weathering although they are in such an exposed position. They must often be filled with water in winter, and its alternate freezing and thawing could not have failed to have caused a very much greater amount of disintegration than their sides now present, had they been cut by the builders of Stonehenge.

Moreover, that the monoliths were not shaped by cutting holes along the line of desired fracture is, I think, satisfactorily proved by the large blocks of sarsen which were found in the excavations. These, it is not unreasonable to assume, had been detached from some of the monoliths in the process of shaping them, yet

on none are there any traces of such holes. All without exception had simply rudely fractured surfaces.

This rough shaping of the sarsens doubtless generally took place at the spots where they were found; the final dressing only being performed in the immediate neighbourhood of the sites where they were to be set up.

Fig. 26. Line of holes cut across a corner of the so-called "slaughter stone." No. 95.

To remove the inequalities resulting from this treatment, to reduce the stones to a proper thickness, and to give to their faces the slightly curved surfaces[*] which many of the monoliths present, evidently required more tedious operations.

[*] It may be mentioned incidentally that the same curved surfaces are found on the internal faces of the huge megalithic blocks of which the dolmens in Japan are constructed whenever these are of hewn stone. See *Archæologia*, lv. 464.

The mode in which these ends were attained, is clearly evident on examining the surfaces of some of the stones, notably Nos. 59, 54, and the underside of 55*a*. On these will be seen several broad parallel and shallow grooves having a more

Fig. 27. Fallen stone showing grooves formed in dressing the surface.

or less prominent rib between them. This is well seen on the fallen stone in fig. 27.

These grooves were undoubtedly made with the stone mauls by violently pounding the stone with them in a line running longitudinally over the surface to be levelled or removed.

The action of a maul so used on the sarsen rock of which the stones consist was this: Each blow fractured and disintegrated the surface over a considerable area and to a considerable depth, forming a shallow cavity, varying in size with the hardness of the rock and the violence of the blow. The procedure was as follows: One or more heavy blows were struck, the material detached was then brushed away, the blows were repeated, but near the edge of the cavity, the material again removed, and this was continued until the groove was completed.

The rib between each groove was broken away by side or vertical blows of the same implement.

Here I would point out that very few small chips of sarsen were found, although larger pieces were common. This is just what we would expect from this mode of dressing, as the material broken away would be either in a more or less pulverulent form or in pieces of considerable size.

On some of the stones, notably on Nos. 59, 54, and 52, transverse, but much narrower and shallower, grooves are seen which were made with the same mauls for facilitating the removal of the longitudinal ribs and the cutting down of the surface.

The sarsen uprights of the outer circle have each two tenons, and those of the horseshoe a single tenon, projecting from their upper extremities, which fit into corresponding mortices on the lintels and imposts. They were evidently troublesome to make, as with the exception of those on Nos. 60 and 56, they are generally of more or less irregular shapes and rude workmanship. In the case of the recently fallen upright No. 22, they are merely low shapeless bosses of only about an inch or so in height; but even the best hewn could have been fashioned, without difficulty, by the patient use of the quartzite hammerstones.

The hollowing out of the mortices on the lintels and imposts was a very easy matter. It was, I think, effected with water and sand by the very efficient process of turning round a stone of less size than the cavity until the required depth was attained, a method practised in Japan in the manufacture of stone mortars.

I am informed by Professor Flinders Petrie that precisely the same process was employed in Egypt in the much more difficult operation of making the exquisitely executed bowls of diorite and other hard stones so well known to Egyptologists. In his excavation at Abydos he had the good fortune to discover the site of an actual workshop where these vessels were made and in which there were many of the rubbing stones that had been actually used in the process.

The lintels have also either vertical projections or grooves on their ends forming rude toggle joints by which they were connected with one another. These too could be fashioned with the hammerstones, and with rubbing stones and sand, without any difficulty. It may be further remarked, that in all such considerations of primitive art it must be remembered that time, which forms such an important element in modern work, hardly comes into account in that of early man.

Fig. 28. Tooled surface of the stone.

The finished surfaces of all the stones exhibit very careful tooling, except where it has been destroyed by exposure. This was particularly well seen on the base of No. 56, where it extends below the ground, and had thus been protected from the action of the weather, and on the lower side of No. 55*a*. On the under side of the fallen lintel, No. 122, it is also very distinct.

A thin slab that became detached from stone No. 56 near its lower extremity, whilst it was being raised, a part of which is shown in fig. 28, affords a characteristic example of this tooling in a very perfect condition, in fact almost as distinct as when it was originally done.

This tooling was apparently executed with the small quartzite hammers. In order to demonstrate this a piece of sarsen was tooled in a similar manner by Mr. Stallybrass with a quartzite pebble. On comparing it with the blocks tooled by the builders of Stonehenge, they were seen to be almost perfectly identical. I may say in this connection that Mr. Stallybrass failed to produce anything at all like it with any of his mason's tools.

We next come to the "bluestones" and the altar stone, which, as we have seen, consist of various kinds of rock, the two hardest of which are diabase and porphyrite. On the stones of these latter materials no grooves are apparent except on No. 67, the groove on No. 68 having been cut for some special purpose,

which is not clearly evident, and not with the mere object of shaping the stone. The chippings from them are generally small, and from their forms, even when large, have all apparently been struck off by blows from a blunt tool. The abundance of these chippings in the excavation prove conclusively that the stones were shaped on the spot.

With the exception of No. 68, none of these monoliths, probably owing to their hardness, are of such regular forms as those of sarsen. So that their sculpture could be accomplished without difficulty by means of the heavy mauls and the smaller quartzite and sarsen hammers, and these were without doubt the tools which were employed. The surfaces of some have been tooled in the same manner as the sarsens, but the pitting is much shallower owing to the tougher nature of the rocks of which they consist.

The stones represented by the clippings of the soft fissile rock, of which only a single weathered stump exists, and the altar stone, could be shaped and partially dressed with any of the implements. But it is in the highest degree probable that the rude flint axes were the tools which were used in the final dressing operations, as they are more suitable for that work on these soft rocks than the heavier and blunter hammers.

Erection of the Stones.

There still remains for our consideration the manner in which the megalithic blocks of this monument of ancient skill were set up and secured in their foundations.

On these points, as regards the most massive stones in the structure, the recumbent stone, No. 55, and the hitherto leaning stone, No. 56, which formed the piers of the central and the greatest of the trilithons, the excavations have afforded us clear and conclusive evidence.

The foundations of these stones when laid bare, as is shown in the foregoing illustration, were seen to be each of an entirely different character, that of the recumbent stone having only a depth of 4 feet, whilst the other extended down to no less than 8 feet 3 inches below the surface. The reason for this is at once apparent, if we compare the relative lengths of the stones, one being only 25 feet and the other 29 feet 8 inches in length; and at the same time take into consideration the obvious intention of the builders respecting them. They were the largest blocks which had been found, and the builders of the monument evidently

determined to utilise their lengths to the utmost, in order that this trilithon, the central one of the series, might have a vaster and more impressive magnificence than its fellows by towering over them, and thus mark in an unequivocal manner the most important point in the sacred enclosure.

With that end in view the shorter stone was embedded to only half the depth of its companion, so that, as is shown by the weathering at their old ground lines, they might bear the impost at a height of about 21 feet above the turf.

To enable the shorter to do this without too great a sacrifice of stability it was necessary to give a special shape to its base. This was accomplished by trimming the stone to a regular form for 21 feet of its length only, and leaving the lower extremity in the shape of a large irregular projecting boss so as to give it a broad bearing on the foundation prepared for it. (See fig. 4.)

The longer stone, No. 56, was dressed into a symmetrical shape from its summit to its base, excepting that the part below the ground was left thicker than the summit and had the rudely pointed form described above.

This stone appears to have been erected first. Its foundations, which have been partly described, were prepared as follows:—The ground lying within and around the site it was intended to occupy was excavated and removed, the chalk rock being cut away to a depth of from 7 feet to 8 feet 3 inches in such a manner as to leave a ledge, on which the base of the stone was to rest, and a perpendicular face rising from it, against which as a buttress its south-west side would bear when set up.

As has been pointed out in a former page, the breadth of this ledge could only be determined approximately, as the chalk rock at its edge passed insensibly into firmly consolidated rubble. It could not, however, have much exceeded 4 feet, and was probably about 4 feet 6 inches.

A low sloping wall of chalk had also been left opposite to and about 1 foot distant from the south-east side of the base of the stone, and a similar wall 2 feet 6 inches distant from the north-west side.

On the north-east side of the ledge the rock had been entirely removed to a depth of about 7 feet near the north corner of the stone, and of about 11 feet in front of the opposite corner.

From the bottom of this hole at a point not determined, as it was not exposed in the excavations, an inclined plane of rock sloping down from the interior of the enclosure was apparently cut, as only 25 feet from the front of the stone the chalk reaches to within 2 feet of the surface.

Both the rubble and chalk were also dug away for a considerable distance to

the north-west, and to a depth of 3 or 4 feet on the south-west. For some reason which is not evident, part of the perpendicular face of the chalk was cut away at the west corner, it may have been, however, to facilitate the adjustment of the stones on which the sloping side of the base was to rest.

Its site having been thus prepared, the monolith which had already been dressed, was slid down the inclined plane into the cavity until its base rested on the ledge.

It was then gradually raised into a vertical position by means of levers and ropes. The levers would be long trunks of trees, to one end of which a number of ropes were attached, as in Japan, so that the weights and pulling force of many men might be exerted on them. The stronger ropes were probably of hide or hair, but others of straw, or of withes of hazel or willow, may have been in use for minor purposes.

As the stone was being raised, it was packed up with logs of timber and probably also with blocks of stone placed beneath it.

After its upper end had reached a certain elevation, ropes were attached to it and it was then hauled by numerous men into a vertical position, so that its back rested against the perpendicular face of the chalk which had been prepared for it. During this part of the operation, struts of timber would be placed against its sides to guard against slip.

Two blocks of sarsen were then placed under the oblique side of the base, the excavation was filled in with rubble, and the erection of the next stone, No. 55, proceeded with.

In the case of this stone, the site it was to occupy was only excavated to a depth of about 4 feet 6 inches below the datum line, and the chalk rock was left as an almost level platform without any very distinct cavity.

A large block of sarsen was apparently placed immediately below its lowest point, and then behind this other large blocks were piled up in such a manner (fig. 12), that the projecting boss at the back of the stone would rest on and be supported by them.

The stone was then raised in the same way as No. 56, and as soon as it was vertical, the two largest blocks (fig. 7) were fixed under it in front, and the large stone mauls were fitted into the interspaces there to give additional support.

From the precarious nature of this packing of stones, it will be evident how very easily the stone would be overthrown by any excavation made in its neighbourhood.

As regards the raising of the lintels, and imposts, and placing them on the tops of the uprights there would be even less difficulty than in the erection of the uprights themselves.

It could be easily effected by the simple method practised in Japan for placing heavy blocks of stone in position.

The stone, when lying on the ground, would be raised a little at one end by means of long wooden levers. A packing of logs would then be placed under the end so raised, the other extremity of the stone would be similarly raised and packed, and the raising and packing at alternate ends would be continued until the block had gradually reached the height of the uprights. It would then be simply pushed forward by levers until it rested upon them.

An important question now arises: are the "bluestones" and the sarsens contemporaneous, or were they set up at different times?

Some special value, perchance, merely from their colour or rarity, must have been attached to the "bluestones," otherwise, the excessive labour required for shaping them would not have been undertaken.

According to a venerable legend, they were brought from Ireland, or other distant place, and were set up as a sacred circle, to which, it has been supposed, the sarsen trilithons and circle were added at a later period in honour of their sanctity. That neither the legend nor the supposition is true, and that both the "bluestone" monoliths and the sarsen blocks are contemporaneous we have ample proofs, as has already been shown in the mode of occurrence of their chippings and of the stones themselves.

Still further evidence in this direction, if such is needed, is afforded by the manner in which the sarsens were set up. That the stones of the central trilithon were erected from the inside of the circle has been conclusively demonstrated by the excavations, hence the "bluestones" in front cannot have been erected before them. Moreover the "bluestone," No. 68, the base of which was laid bare in Excavation V., was found to be set in the rubble which had been used to fill up the foundation of No. 56, and further, in a lower layer than its base, there were two small blocks of sarsen with tooled surfaces.

Whether the outer sarsens were set up from the inside of the circle like the trilithons or from the outside, is a point which can only be settled by future excavations. If from the inside their erection must have preceded that of the trilithons and hence of the "bluestones."

On the other hand, should the outer sarsens have been raised from the outside, it would not be possible for the "bluestones" to have been placed in position

before them, as they would then have seriously interfered with if not altogether prevented the erecting operations.

The venerable traditions which tell of the earlier date and more sacred character of the "bluestones" are hence shown to have no foundation in fact, they are merely the creations of poetical imagination. No long interval of time separated the erection of the sarsen and the "bluestone" monoliths, although the work must have occupied a considerable period. The monument as a whole is of one date. Its parts do not belong to different ages.

Age of Stonehenge.

As regards the age of Stonehenge we have now to consider how far the objects found in the excavations throw light on that important and much disputed subject.

No object of bronze, iron, or other metal occurred in the excavations except in the superficial layers.

The Roman coins were found at but small depths below the surface, and with one exception, the doubtful coin or Anglo-Saxon ornament, not deeper than the modern coins.

But at the south-east end of Excavation V., 7 feet below the datum line, there was found a rectangular slab of sarsen, to which allusion has already been made, the upper surface of which is tooled, and having on its lower side a small green stain, or more correctly a green incrustation. The incrustation, which is of extreme thinness, occurs in the form of two small patches of irregular shape. A minute portion of it was analysed and found to consist of carbonate of copper. Now this incrustation can only have been produced by prolonged contact with some very small object of copper or bronze or some material containing copper. What the object or material can have been it is difficult to say as it had completely perished; for it was not found, notwithstanding that it was specially sought for, and anything larger than $\frac{1}{8}$ inch could not have escaped observation. It may perhaps have been an ornament, but cannot possibly have been an implement.

Both Roman and British pottery were obtained at several points, but only in small fragments, all much too small for the determination of the shapes of the vessels to which they belonged. None were found along with the stone implements or under other conditions from which any useful deductions could be drawn. As regards the discovery of Roman pottery after the fall of the trilithon

in 1797, Mr. William Cunnington gives the important information contained in the footnote.[a]

Then as regards pottery of an earlier date, the discovery of a *thuribulum* 3 feet below the ground, recorded by Inigo Jones, affords no evidence either as to the age or purpose of the monument, as the nature of the ground and the conditions under which it was found are not given, and without these, in a place so honeycombed in parts by rabbit burrows, no scientific value can be attached to the occurrence of any object. It may be of very much later date than Stonehenge, even if it were found at a greater depth, for in Excavation VI. I dug up a modern preserved meat tin from a much lower layer than the stone implements in the neighbouring undisturbed ground.

As regards the stone implements, I have already partially dealt with their character and approximate age. More, however, remains to be said about them. The large number of these implements, their rudeness, and the complete absence of any of bronze might be considered to indicate without doubt that they belonged to an early part of the neolithic age, and hence that Stonehenge was of that date. But as I have previously shown, bronze tools were by no means necessary for any of the operations required, either for shaping the stones or for erecting them, and it is possible that if the early bronze age people found that stone tools were the most suitable implements to employ they would certainly have used them. So that the occurrence of stone tools does not alone prove with absolute certainty that Stonehenge belongs to the neolithic age, although it affords a strong presumption in favour of that view. But, and this is important, had bronze been in general or even moderately extensive use when the stones were set up, it

[a] "In the 'Beauties of Wiltshire,' vol. ii. p. 131, it is stated that 'pottery of Roman manufacture was discovered after the fall of the large stones in 1797, *in the soil which served for their foundation*.'

"This statement having been the cause of some misapprehension, I have been requested to publish the following information.

"The late Mr. Cunnington, of Heytesbury, first mentioned the subject to Mr. Britton, but the most important point connected with it seems to have been misunderstood. He consequently addressed a letter to Mr. Britton, in which he explained the matter fully. It is dated Heytesbury, October 22nd, 1801, and is now in my possession. He writes as follows: 'I think you should correct the statement respecting the Roman pottery found at Stonehenge. Your paragraph conveys what I never meant it to convey, namely, that the pottery was deposited before the erection of the stones. I conceive it to have been in the earth surrounding the stones, and after the fall of the trilithon the earth containing these fragments would naturally moulder into the hollows, for in this loose earth recently fallen into the cavity, the bits of pottery were found.'"—*Wiltshire Archæological and Natural History Magazine*, xxi. 149.

is in the highest degree probable that some implement of that metal would have been lost within the area of the excavations, and if so lost, it would certainly have been found together with the stone tools. Further, the employment of deer's horn picks for the extensive excavations made in the chalk around the base of the monoliths, Nos. 55 and 56, the evidence of which I have already laid before you, also tends to support the view that bronze implements cannot have been in common use. If they had it would seem not unreasonable to assume that they would have been employed, as they would have been so much more effective for such work than the picks of deer's horn.

Again, the chippings of the stones of Stonehenge in two of the bronze age barrows[a] in its neighbourhood show that it is of earlier date than they.

The copper-stained stone found in Excavation V., is, in fact, the only evidence which the excavations have yielded that copper or bronze was known. It proves their existence, but it does not prove that they had then been applied to any industrial uses.

Only a comparatively small area of the ground within Stonehenge was excavated (general plan, Plate VII.), and it may be that in further excavations some bronze implements may be found.

Until such discovery is made, I shall hold that Stonehenge was erected during the latter part of the neolithic age, or the period of transition from stone to bronze, and before that metal had passed into general practical use, and in that opinion, I think, I am fully supported by the evidence afforded by the excavations.

The difficulty of giving an exact or even approximate date to that early period, in the total absence of any aid from inscriptions or the records of ancient chronicles, will be evident to all. Yet I think the task should not, on that account, be evaded although I approach it with the greatest diffidence.

The date of the beginning of the bronze age has been computed by several distinguished archæologists. Sir John Evans proposes 1400 B.C. for Britain, but with some hesitation, and evidently is inclined to think his estimate too low. Montelius gives 2000 B.C. for northern Italy. These dates are those of the first use of a copper or bronze weapon. But in all countries where ores of copper, and especially ores of tin, as in England, were abundant and cropped out at the surface of the ground, and native copper may have been occasionally met with, there must have been a long period during which neolithic men were merely acquainted

[a] Sir Richard Colt Hoare, *Ancient History of South Wiltshire* (London, 1812), 127; W. Stukeley, *Stonehenge* (London, 1740), 46.

with these metals but unable to make any practical use of them. And there can be no question that the progression from a mere knowledge of metals, to their general application to the manufacture of implements, was extremely slow and must be measured probably by centuries.

So that, in my opinion, the date when copper or bronze was first known in Britain is a very remote one, as no country in the world presented greater facilities for their discovery. The beginning of their application to practical uses should, I think, be placed at least as far back as 1800 B.C., and that date I am inclined to give, until further evidence is forthcoming, as the approximate date of the erection of Stonehenge.

In this connection, I may cite the results of an important investigation recently made by Sir Norman Lockyer and Mr. Penrose with a view to the determination of the age of Stonehenge from astronomical data.

Their argument rests upon the assumption of the monument having been a solar temple.

They observed the point of the rising of the midsummer sun in the direction of a line traversing the middle of the avenue from a point lying midway between the piers of the central trilithon. From their observations they arrived at 1680 B.C.; + 200 years as the date of the monument, a date in close agreement with that I have ventured to propose on entirely different grounds.

Purpose and Origin of Stonehenge.

The purpose for which Stonehenge was erected, space will not permit me to discuss at length, yet it cannot be passed over in silence.

All the evidence we have, apart from the doubtful attributions of legendary lore, leads, I think irresistibly to the conclusion that it was not a sepulchre, but a place of sanctity dedicated to the observation or adoration of the sun.

If on the morning of Midsummer Day we stand in the middle of the horse-shoe curve in which the trilithons are arranged, a point once marked by the aperture between the two piers of the central and greatest of them, and look in the direction of the "hele" stone, the sun will be seen to rise approximately over the summit of that monolith.

This can hardly be accidental. It is, in fact, impossible to conceive that the arrangement of the trilithons in an open curve, with its opening directed eastwards, and more especially that the position of the central trilithon and altar

stone in relation to the "hele" stone and the avenue, can have been the result of mere chance.

If not the result of chance, this disposition of the stones must have been made with some purpose, and that purpose cannot have been other than to direct observers or worshippers to the point where the sun rose in the heavens.

A somewhat parallel case is afforded us in the surviving form of sun-worship in Japan.

There on the seashore at Fūta-mi-ga-ura, as will be seen in Plate VI. (a copy of a print which I obtained at that ancient place), the orientation of the shrine of adoration is given by two gigantic rocks which rise from the sea as natural pillars. The sun as it rises over the mountains of the distant shore, is observed between them, and the customary prayers and offerings made in that direction.

It is, too, specially worthy of note that the point from which the sun is revered is marked by a structure of the form of a trilithon, but made of wood, placed immediately behind the altar. This representative of the trilithon is of very remote date in Japan, and has been in use there from the earliest times in connection with the observances of the ancient Shintō cult in which the Sun-Goddess is the chief deity. One of its important uses, which still survives, was to indicate the direction of the position of some sacred place or object of veneration, in order that worshippers might make their prayers and oblations towards the proper quarter.

That the sun was revered by many races in the primitive period there are abundant proofs. In Britain our knowledge of the religious cult of the men of the period of transition from stone to bronze, or of the early bronze age, is extremely limited, yet very strong evidence in favour of some kind of worship or reverence of the sun is afforded by the interments in the barrows of Yorkshire and Derbyshire,[a] explored by Canon Greenwell, where "the habit was generally to place the body in the grave facing the sun."

In later days when Stonehenge had ceased to be a temple of the sun, and its sacred character had departed, it might have been used as a sepulchre, but of this there is no positive evidence, and its ascription to such a purpose would seem to have no other basis than the fanciful ascriptions of ancient legends.

Finally, as to the origin of Stonehenge.

The idea of the origin of megalithic structures from a common source has

[a] W. Greenwell, *British Barrows*, 26.

SUN-WORSHIP IN JAPAN. From a Japanese Print.

been advanced by many writers. But in this connection it should be borne in mind that there seems to have been an epoch in the life of many races, widely separated from one another, during which, under very varied conditions, they erected monuments of more or less rude megalithic blocks and of similar forms. And from this it by no means follows that the practice or the forms were copied by one race from another, but rather that they were the outcome of a similar development of the human mind and had an independent origin in many and remotely separated regions.

In Britain there is abundant evidence, in the numerous rude stone monuments distributed throughout its area, that this peculiar phase of mental development had reached a very high point. Why then should we seek in distant countries for the origin of this crowning example of megalithic art?

Of its foreign origin there is, in fact, no proof, and its plan and execution alike can be ascribed to none other than our rude forefathers, the men of the neolithic or, it may be, of the early bronze age.

APPENDIX.

Description of the Excavations, containing an Account of the Nature and Contents of each Layer of Material removed.

Excavation I.

Figs. 8 and 7. Length 8 feet, breadth 3 feet, depth 7 feet.

Layers 1 and 2.—On account of the contour of the ground with respect to the datum line these layers did not extend over the whole area of the excavation. Layer 1, where present, consisted of turf and mould only. Layer 2 had the same composition except at its lower part near the south-west end, which was earthy chalk rubble.

In Layer 2, near the monolith, there were many articles of recent date, such as fragments of beer bottles, glasses, and crockery, clay pipe stems, hair pins, buttons, and the like. Among the roots of the turf broken pieces of flint were very numerous, not only in this but in all the excavations.

A considerable quantity of chippings and fragments of the stones occurred, especially in Layer 2, from 3 feet 6 inches to 8 feet from the monolith. They comprised ordinary sarsen and pieces of hammerstones, diabase, porphyrite, and "fissile rock" (calcareous altered tuff). Chippings of the "bluestones" were greatly in excess of those of ordinary sarsen, and consisted chiefly of diabase and porphyrite.

The following objects were found in the positions indicated by the numbers and letters attached to them:

1 HR. Fragment of grey pottery.

2 HL. Eight inches below the present surface. A Roman coin: A 'large brass' or sestertius of Commodus with figure of 'Nobilitas' on the reverse. Struck A.D. 187.

2 HR. A small round bar of iron, 4¾ inches long and ¼ inch in diameter, tapering to a point at each end.

Layer 3.—Fine mould near the stone, the remainder being earthy chalk rubble passing into chalk rubble with but little earth on the north-west side.

In the Divisions A, B, C there was the usual modern rubbish mentioned above, but also a few pieces of somewhat older bottle glass.

All the stone chippings found in the above layers were represented in this layer, and in addition there were others of argillaceous sandstone. Chippings of the "bluestones" were much more numerous than those of the sarsens, argillaceous sandstone, porphyrite, and diabase being most abundant.

There was also found part of a nodule of iron pyrites showing signs of abrasion at one edge, but whether from use or weathering it is difficult to say, also the following:

In BM. 17 inches below the datum line and 8 inches below the present surface a penny of the reign of George III. A.D. 1799.

In CL. 19 inches below the present surface a small piece of bronze wire $\frac{3}{16}$ inch long. Found together with broken bottle glass.

In DM. Minute fragment of ancient grey pottery.

Layer 4.—Divisions A and B consisted of fine mould, the remainder, from C to H inclusive, being chalk rubble with but little mould, passing into white chalk rubble.

In the middle of ABL a rabbit hole was met with, which was subsequently found to extend downwards almost perpendicularly to a depth of 3 feet 10 inches below the datum line. In it lumps of red brick and many modern articles occurred down to its extreme end.

The chippings and fragments of rock in this layer were chiefly from the "bluestones." Diabase was most abundant, "fissile rock" and argillaceous sandstone were less plentiful, porphyrite was almost absent, and there was but little sarsen.

In CL, 12 inches below the present surface a small piece of iron of irregular shape was found, and at about the same depth in CM some pieces of iridescent and of much decomposed glass.

Layer 5.—From the monolith to the end of Division B there was still fine mould, and from thence to H white chalk rubble.

Chippings of the "bluestones" were greatly in excess of those of the sarsens. All the kinds of stone were represented, diabase being more abundant than the others, argillaceous sandstone coming next in quantity.

There were also found:

In CR a well chipped flint hammerstone with edge. Fig. 17, *a*.

In DR a large splinter of deer's horn partially imbedded in a lump of chalk.

Layer 6.—All white chalk rubble for the most part resting on chalk rock except near the stone and the rabbit burrow.

Chippings of the stones were much fewer than in the above layers; those of the "bluestones" largely preponderated.

The "fissile rock" was absent, and there was but little porphyrite.

In Division BL there was a lump of diabase measuring about 3½ inches by 3¼ inches with two of its sides trimmed; and in the rubble above the chalk rock a piece of a hammerstone of sarsen.

Layer 7.—Mostly chalk rock.

A splinter of deer's horn and some flint flakes only were found in this layer just above the bed rock.

Layer 8.—Nothing was found.

Layer 9.—Nothing was found excepting four or five small pieces of sarsen, and one or two of argillaceous sandstones representing the "bluestones." They occurred in the chalk rubble in Division C—DR.

The other layers yielded nothing except 12, in Division AR + 6 inches, under the sloping base of the stone where there was a splinter of deer's horn.

This excavation was carried down to a depth of 7 feet below the datum line.

Excavation II.

Figs. 9 and 7. Length 8 feet, breadth 3 feet, depth 8 feet.

There was no Layer 1. Layer 2 was imperfect, and where present consisted of turf only in which were the usual broken flints and much modern rubbish, as in the upper layers of the previous excavation.

Layer 3.—Mostly turf and mould.

Chippings of the "bluestones" were in excess of those of the sarsens. Of the former diabase and porphyrite were most abundant. The "fissile rock" was present, but in small quantity only, and there was but little argillaceous sandstone. Two large fragments of sarsen hammerstones were also found as well as a piece of a nodule of iron pyrites.

Layer 4.—From the monolith to Division B was mould with recent rubbish, and thence to the south-west end earthy chalk rubble.

Chippings of the stones were very numerous. Sarsen was slightly in excess of the "bluestones." Of the latter there was most diabase, slightly less porphyrite, still less "fissile rock," and only a little argillaceous sandstone. One or two of the pieces of sarsen were fragments of hammerstones.

The other finds were:

In HR. Two fragments of rude pottery with a black fracture containing grains of quartz sand.

In GR. A large iron nail.

In AM. A flat piece of cast iron and some much decomposed bottle glass

Layer 5.—Fine mould near the monolith. Earthy chalk rubble, passing into white chalk rubble from Division D to the south-west end.

Chippings of the "bluestones" were in very large quantities compared with those of

the sarsens. Of the former, argillaceous sandstone and diabase were most common, and both porphyrite and the "fissile rock" much less abundant.

Several fragments of sarsen hammerstones were found, and the following:

In DM. A thick piece of opaque blue iridescent glass.

In AL. In the mould against the stone a thin circular piece of bronze foil, ½ inch in diameter (part of a button ?), together with a piece of thin hoop iron, 2 inches by ½ inch, an iron nail, and a brass pin.

In CM. A brass pin 1¾ inches long.

Layer 6.—Earthy chalk rubble in Divisions B and C, thence white chalk rubble overlying the chalk rock.

The chippings of stone which were found occurred for the most part in the Divisions C, D, E, and ½B. They were all "bluestones" except a few pieces of ordinary sarsen and of sarsen hammerstones.

The "fissile rock" and porphyrite were more abundant than the diabase and argillaceous sandstone.

The other finds were:

In BM. A hammerstone with edge. Flint. Fig. 14, *c*.

In BM. A hammerstone with edge. Flint. Similar to fig. 17, *b*.

In CM. A hammerstone rounded. Flint. Weight 17 ounces.

In CM. A hammerstone rounded. Flint. Weight 19 ounces.

In CL. A hammerstone rounded. Compact sarsen. Weight 4 pounds. Similar to fig. 20, *a*.

Layer 7.—All chalk rock except Divisions C and part of B and D. In these divisions the chippings were all "bluestones" except one or two pieces of sarsen hammerstones. They consisted of porphyrite, argillaceous sandstone, and diabase only.

Layer 8.—Had the same composition as the previous layer. In CD, two pieces of sarsen, one with a tooled surface, were found.

The excavation was carried down to a depth of 8 feet below the datum line, but nothing was found below this layer except a lump of sarsen, with one of its surfaces tooled in layer 12 against the side of the monolith. A step of solid chalk, 1 foot 6 inches broad and 1 foot 6 inches high, was left at the south-west end.

Excavation III.

Figs. 10 and 7. Length 8 feet, breadth 3 feet, depth 8 feet 3 inches.

Owing to the contour of the surface of the ground here being very irregular and for the most part about 14 to 20 inches below the datum line, Layer 1 was absent, Layer 2 nearly so, and Layer 3 imperfect. What there was of the last layer consisted of turf and mould full of modern rubbish, such as was found in the surface layers of the above excavations.

Layer 4.—Divisions A and B fine mould. The remainder consisted of earthy chalk rubble on the north-west side and fine mould on the other.

Chippings of the "bluestones" were largely in excess of those of the sarsens. Of the former, diabase, porphyrite, "fissile rock," and argillaceous sandstone were present in about equal quantities. Besides these there were one or two pieces of sarsen hammerstones, two fragments of iron pyrites, and the following:

In HM, an iron nail and a thin strip of white metal 2¼ inches long and ½ inch broad, just below the surface.

In HR, a halfpenny of George I., A.D. 1722.

A rabbit burrow began in Division ER, and traversed the ground along the side of the recumbent stone, 55*a*, which here bounded the excavation on its south-east side.

Layer 5.—For the most part earthy chalk rubble. Fine mould in Divisions A and B.

"Bluestone" chippings were present in much larger quantities than those of sarsen. All the rocks of the previous layer were present, but the "fissile rock" was most abundant, and there was but little porphyrite.

A few pieces of sarsen hammerstones were found, also two splinters of deer's horn and the following:

In CM, about 10 inches below the surface, a Roman coin, a sestertius of Antonia, mother of Claudius (?), and daughter of Marcus Antonius and Octavia. Her head is on the obverse, and on the reverse a figure of Claudius, her husband.

In DM, at about the same depth as the above, a pewter farthing of James II., and an iron nail.

In CL. A hammerstone, rounded. Flint. Fig. 20, *d*.

In HR. A hammerstone with edge. Flint. Similar to fig. 16, *c*.

In DL. A very rude axe. Flint. Class IA.

In FL and BM, several pieces of iridescent and decomposed glass.

A large rudely broken block of sarsen, measuring about 12 inches by 10 inches, by 10 inches was taken out with the material of this layer at EML.

Layer 6.—White chalk rubble, with earthy chalk rubble in the half nearest the monolith and on the south-east side, and fine mould in B. There were many chippings of the stones in this layer. The "bluestone" chippings again largely exceeded the sarsen in quantity. There was, in fact, but little ordinary sarsen, most being pieces of broken hammerstones of the compact variety of this rock.

The "fissile" rock was the most abundant, next in amount came argillaceous sandstone and porphyrite, whilst diabase was almost absent.

A fragment of a nodule of iron pyrites and the following were also found:

In EM. A small axe-like implement. Flint. Fig. 17, *e*.

In GL. The edge portion of a similar tool.

In GL. A large rudely chipped flint, which seems to have been used as an axe hammer, resembles fig. 16, *c*.

In DM. A much decomposed piece of bottle glass.

Layer 7.—In Divisions GHL the chalk rock was reached. The remainder of the layer was white chalk rubble with a little earthy chalk rubble and mould near the monolith.

The excavation of this layer was carried partly under the recumbent stone, as shown in the plan (fig. 7).

The stone chippings were somewhat fewer than in Layer 6. Again there was but little ordinary sarsen, this rock being chiefly represented by pieces of hammerstones, and "bluestone" chippings largely preponderated. The different kinds of the latter were present in similar proportions as in Layer 6, except that there was a fair amount of diabase and less porphyrite.

A piece of micaceous sandstone and the following were also found:

In DM. A large maul of compact sarsen. Dimensions 12¾ inches by 10¼ inches by 9½ inches. Weight 64 pounds 3 ounces. Fig. 22, *b*.

In AR. A long axe, well chipped. White flint. Fig. 14, *a*

In GM. A long axe, very rude. Flint.

In GM. Axe-like hammer, well chipped. Flint. Fig. 16, *a*.

In GM. Small axe, imperfectly chipped. Flint. Fig. 17, *f*.

In DM. Large axe with double edge. Flint. Fig. 16, *e*.

In DM. Axe, very rude. Flint. Fig. 15, *e*.

In GR. Hammerstone with edge, similar to fig. 16, *e*.

In CR. Hammerstone with edge.

In HM. Hammerstone with edge, very short in comparison with length of edge.

In EM. Hammerstone with edge. Fig. 17, *b*.

In CM. Hammerstone, rounded. Weight 1 pound 3 ounces. Compact sarsen. Fig. 20, *i*

In GR. Hammerstone, rounded. Weight 3 pounds 15 ounces. Compact sarsen.

Layer 8.— In FGHL chalk rock. The remainder white chalk rubble with a little earthy chalk rubble near the monolith. The stone chippings were fewer than in Layer 7 "bluestones" and sarsen being equally represented. Of the former, diabase was most abundant, and occurred together with sarsen on the bed rock. There was only a little of the "fissile rock" and still less porphyrite.

The only other find was:

In DM. A hammerstone with edge. Flint. Fig. 16, *d*.

Layers 9 and 10.—Chalk rock partly overlaid with white chalk rubble on the south-east side.

Stone chippings were almost absent, only a few of diabase being found just above the surface of the chalk rock.

In Layer 9, at 4 feet 6 inches below the datum line, a large block of sarsen, measuring 1 foot 10 inches by 1 foot 1 inch by 7 inches, was discovered under the recumbent stone. This it has been shown above was one of the blocks which had been fixed under the base of this monolith, when it was erected, to act as supports.

In 9 ER also under the recumbent stone a very rudely chipped hammerstone with edge, resembling fig. 16, *e*, was found.

This excavation was carried down to a depth of 8 feet 3 inches below the datum line, except that a step of solid chalk, about 1 foot 6 inches high and 2 feet broad, was left at the south-west end.

Excavation Q.

Figs. 12 and 7. Length 5 feet 6 inches, breadth above the chalk about 6 feet, below the chalk 3 feet, depth 8 feet.

It will be convenient to describe this excavation here, as although it was not made immediately after Excavation III., yet it adjoins it and is intimately connected with it, as they together laid bare the original site of the base of the recumbent stone 55*a*.

They yielded too nearly the whole of the stone tools which were found in the explorations. This excavation was made entirely beneath the recumbent monolith.

At its north-east extremity the large block of sarsen exposed in Excavation V. was laid bare, also a similar one adjoining it. These blocks measured respectively 3 feet 7 inches by 2 feet 6 inches by from 6 inches to 1 foot 4 inches, and 3 feet 4 inches by 2 feet 4 inches by 1 foot 6 inches.

The recumbent stone was found to be resting immediately upon them at this end, and on several similar but smaller blocks at the other only three of which could be completely dug out, the remaining two or three being firmly wedged in between the stone and others below them.

The lower face of the monolith was, for the most part, about 3 or 4 inches clear of the surface of the ground, this space being partly filled up with numerous shells of land snails.

Layers 1 to 5 were absent.

The uppermost Layer 6 and part of Layer 7 consisted of about 4 to 6 inches of mould overlying earthy chalk rubble and contained but little modern rubbish, chiefly broken glass and crockery and pipe stems, all of which were on the surface. A fragment of Roman pottery and a small ornament of bronze probably modern (may be Roman) was also found in this layer of mould.

In 6 CL‴ a large maul of compact sarsen weighing 46 pounds was found cropping out above the surface just within the south-east side of the recumbent stone. It was tightly wedged in between the latter and two large blocks of sarsen, and was extracted with difficulty.

In 6½ AM in the rubble below the mould a very large rude flint axe resembling fig. 15, *c*, and at 6 AL two small flint hammerstones with blunt edges similar to fig. 20, *d* were found.

In 6 AM there was a halfpenny of George II.

Layers 7 and 8.—These layers had to be taken out partly together owing to the impossibility of removing six large mauls from Layer 7 without disturbing Layer 8. The layers consisted of chalk rubble with more or less mould.

At the north-east end of Layer 8 the chalk rock was exposed. Both layers contained many chippings and pieces of sarsen with several fragments of sarsen hammerstones. Chippings of the "bluestones" were very much fewer than the above, and of these diabase and argillaceous sandstone were in excess of the "fissile rock," and there was but little porphyrite.

There were also three large and several small pieces of micaceous sandstone.

In these layers, together with Layer 9, three large irregularly shaped blocks of sarsen roughly broken and of the following dimensions were taken out at the south-west end:

1 foot 10 inches by 1 foot 1 inch by 7 inches.

1 foot 8 inches by 11 inches by 8 inches.

2 feet 2 inches by 1 foot 6 inches by 7 inches.

The ends of several other blocks roughly piled up on one another were seen beyond these, but not removed, as the recumbent stone was resting on them. All these blocks, as has already been shown, formed the supports of the base of this monolith before its fall.

The following stone implements were also found:

In 7 AM. Axe. Flint. Similar to fig. 17, *d*.

In 7 CL′. Axe (broken). Flint. Similar to fig. 17, *d*.

In 7 FM. Axe (much worn). Flint. Similar to fig. 15, *b*.

In 7 CL′. Hammerstone with long edge. Flint.

In 7 CL″. Hammerstone. Flint. Similar to last.

In 7 CL′. Hammerstone. Flint. Weight 1 pound 3 ounces. Fig. 20, *e*.

Six large mauls of compact sarsen as follows:

In 7 A′M. Maul. Weight 36 pounds 2 ounces.

In 7 A′L′. Maul. Weight 43 pounds 6 ounces.

In 7 A′L′. Maul. Weight 46 pounds 15 ounces. Fig. 21, *b*.

In 7 AL″. Maul. Weight 58 pounds 7 ounces.

In 7 AM. Maul. Weight 44 pounds 2 ounces. Fig. 21, *a*.

In 7½ BL. Maul. Weight 45 pounds. Fig. 22, *a*.

Also

In 7 BL. Hammerstone, rounded. Compact sarsen. Weight 1 pound 12 ounces. Fig. 20, *b*.

In 7 CL′. Hammerstone, rounded. Compact sarsen. Weight 11 ounces.

There were, besides these in Layer 7, five similar hammerstones, more or less broken, and weighing from 1 pound 6 ounces to 2 pounds 10 ounces, viz.: three in EM and two in DL.

In 7½ BM. Hammerstone. Flint. Similar to fig. 20, *d*.

In 7½ BM. Axe. Flint. Similar to Fig. 15, *b*.

In 7½ BM. Hammerstone with edge. Flint. Similar to fig. 16, *c*.

In 7½ CL. Hammerstone with edge. Flint. Similar to fig. 16, *c*.

In 7½ AL. Hammerstone with edge. Flint. Similar to fig. 16, *c*.

In 7½ BL. Axe, double edged. Flint. Fig. 16, *b*.

In 8 DR. Axe, well chipped. Flint. Fig. 15, *a*.

In 8 BM. Axe. Argillaceous sandstone. Fig. 20, *h*.

In 8 CM. Axe. Flint. Fig. 17, *c*.

In 8 CM. Axe. White flint. Fig. 14, *c*.

In 8 CM. Hammerstone with edge. Flint. Similar to fig. 16, *c*.

In 8 CM. Hammerstone with edge. Flint. Similar to fig. 14, *c*.

In 8 DL. Hammerstone with edge. Flint. Similar to fig. 16, *c*.

In 8 DL. Hammerstone, rounded. Flint. Similar to fig. 20, *d*.

In 8 DL′. Hammerstone, rounded. Flint. Similar to fig. 20, *d*.

In 8 DL′ Hammerstone, rounded. Compact sarsen. Weight 3 pounds 12 ounces. Fig. 20, *a*.

In 8 EM. Hammerstone, rounded. Compact sarsen Weight 1 pound 7 ounces Fig. 20, *f*.

In 8 BM. Hammerstone, rounded. Compact sarsen. Weight 1 pound 10 ounces.

In 8 M. Hammerstone, rounded. Compact sarsen. Weight 1 pound 5 ounces.

In 8 EM Hammerstone, rounded. Compact sarsen. Much broken.

In 8½ ER. Hammerstone, rounded. Compact sarsen. Broken. One pound 6 ounces.

Layer 9 with lower part of 8.—Chalk rock at the north-east end and at the south-east side, the remainder being white chalk rubble. Chippings of the stones extended down to the chalk rock but were not very numerous. There were very few of sarsen compared with those of the "bluestones." Of the latter, diabase, argillaceous sandstone, and porphyrite were present in about equal quantities, whilst there was much less of the "fissile rock." The other finds were :

In 8½ EL. Hammerstone, rounded, well worn. Compact sarsen. Weight 1 pound 3 ounces

In this division there were also two pieces of similar but much larger hammerstones, and in 8 ER another large fragment

In 9 EL. Axe, very rude. Flint. Fig. 15, *e*

In 9 EL. Axe, very rude. Flint. Much broken.

In 9 EL Hammerstone with edge. Grey flint. Similar to fig. 16, *c*.

In 9 EL. Hammerstone, rounded. Broken. Compact sarsen.

Many splinters of deer's horn, from 1¼ inch to 3 inches in length, occurred in Layers 8 and 9 in the rubble overlying the chalk rock.

In this Excavation, the chalk rock was reached at from 4 feet to 5 feet below the datum line. On the south-east of the monolith, now upright (No. 56), it had been cut away so as to form a sloping wall parallel with the short side of this stone, and 2 feet distant from it at the upper edge and 1 foot at the base.

Excavation IV. See plan (Fig. 7).

This was a small excavation made for the purpose of clearing away the ground from the north-west side of the monolith to facilitate the operation of raising it.

It measured only 3 feet in length and 1 foot in breadth, and extended to a depth of 4 feet below the datum line.

Layer 1 was absent, and 2 consisted of turf only.

Layers 3 and 4 were taken out together. They were chiefly mould mixed with a little

chalk rubble and many chippings of the stones. The upper part of Layer 3 contained the usual modern rubbish.

Chippings of the "bluestones" were largely in excess of those of sarsen. Of the former, diabase, porphyrite, and "fissile rock" were present in about equal proportions, but all these taken together scarcely equalled in quantity the argillaceous sandstone, which was unusally plentiful.

Besides ordinary sarsen, there were some pieces of hammerstones. There was, too, a piece of micaceous sandstone. In 3 R, a flint hammerstone with edge fig. 16, *c*, and in 3 L a rudely chipped flint were found.

Layers 5, 6, 7, and 8 were traversed by rabbit burrows, in which there was much modern rubbish, especially pipe stems, broken beer bottles, and crockery.

There were also many stone chippings, but the ground had been so much disturbed by rabbits that their positions were not noted, nor were they collected.

The "bluestones" were chiefly represented, there being even less sarsen than in Layer 3 and 4.

The layers below 8 were taken out in Excavation V.

Excavation V. Figs. 13 and 7.

This excavation was begun immediately after the "leaning stone" had been raised to an upright position as regards its north-east and south-west sides, and before its inclination to the south-east had been rectified.

It measured 8 feet 6 inches to 9 feet in length, 5 feet in breadth, and was carried down to a depth of from 8 feet to 8 feet 3 inches below the datum line.

The material was taken out in two vertical sections, the north-west section which extended over rather more than half the area being completed before the other. The layers of both sections will, however, be best described together.

As has already been pointed out, the whole of the ground consisted of chalk rubble, which in the upper layers was more or less mixed with mould, and contained a much smaller quantity of chippings of the stones than the ground excavated on the other side of the monolith.

Layer 1 was absent.

Layers 2 *and* 3.—Neither extended over the whole area, and where present they consisted of turf and mould only.

They contained several pieces of sarsen hammerstones, also chippings of ordinary sarsen, but the latter were very much less in quantity than those of the "bluestones." The "bluestones" were chiefly represented by argillaceous sandstone and diabase, and to a lesser extent by porphyrite and "fissile rock." A few pieces of micaceous sandstone and two small fragments of ancient grey pottery were also found.

Chippings of the stones were, however, but few in these layers.

Layer 4.—Extended over the whole area to within about 2 feet 6 inches of the monolith,

where it was absent. It consisted of chalk rubble mixed with mould. In the north-west half stone chippings occurred very sparingly, and in the other half chiefly in A′ABC. Sarsen chippings were very much fewer than those of the "bluestones." Of the former there were several pieces of hammerstones. Of the latter there was most diabase and argillaceous sandstone, and least porphyrite and "fissile rock." One or two fragments of micaceous sandstone were also found, and the following :—

In HM. A coin (?) 17 inches below the turf. Mr. Grueber says of this, "I think this is a coin, it may, however, be a 'ticket.' It is Roman or early Anglo-Saxon ; if the latter it would be an ornament."

Layer 5.—Chalk rubble with a little mould extended to within about 2 feet of the monolith. A rabbit burrow ran through AB parallel with the side of the recumbent stone No. 55*a*.

All the kinds of "bluestones" and sarsen were present, the former in the greatest abundance. Diabase, argillaceous sandstone, and porphyrite were chiefly represented, there being but little "fissile rock" and only one or two fragments of micaceous sandstone. The following were also found :

In A′AM. Against the recumbent stone. Hache. Grey flint. Fig. 14, *b*.

In A′AM. Another similar to the last but very rude. Grey Flint.

In AM. Hammerstone with edge. Flint. Similar to Fig. 16, *c*.

In ABM. Lump of diabase. 4 inches by 3½ inches by 2½ inches.

In ALM. Two fragments of ancient grey pottery.

In excavating this layer a very large block of sarsen, projecting from under the recumbent stone, was discovered.

Layer 6.—Chalk rubble with a little mould. Extended to within about 1 foot 9 inches of the monolith. The rabbit burrows near the recumbent stone still continued.

The "bluestones" were largely in excess of ordinary sarsen.

Each variety of the former was present in approximately equal amounts. There were also a considerable number of fragments of hammerstones, some micaceous sandstone, and the following :

In GRM, Axe, very rude. Compact sarsen.

In AM. Rounded lump of diabase which seems to have been used as a hammerstone. Weight 6 pounds 7 ounces.

In CL. Piece of calcined flint.

In CLM. Two pieces of ancient pottery.

Layer 7.—Chalk rubble with very little mould. Extended to within about 1 foot 6 inches of the monolith.

All the kinds of stone were represented, but the chippings were fewer than in the last laye.

The "bluestones" were in excess of ordinary sarsen, but there was a considerable number of pieces of hammerstones. Diabase predominated. Other finds were :

In A′AM. Axe. Grey flint Fig. 14, *d*.

In CL. Hammerstone, rounded. Compact sarsen. Weight 12 ounces.

In F. Fragment of rude ancient pottery.

Layer 8.—Mostly chalk rubble with only traces of mould.

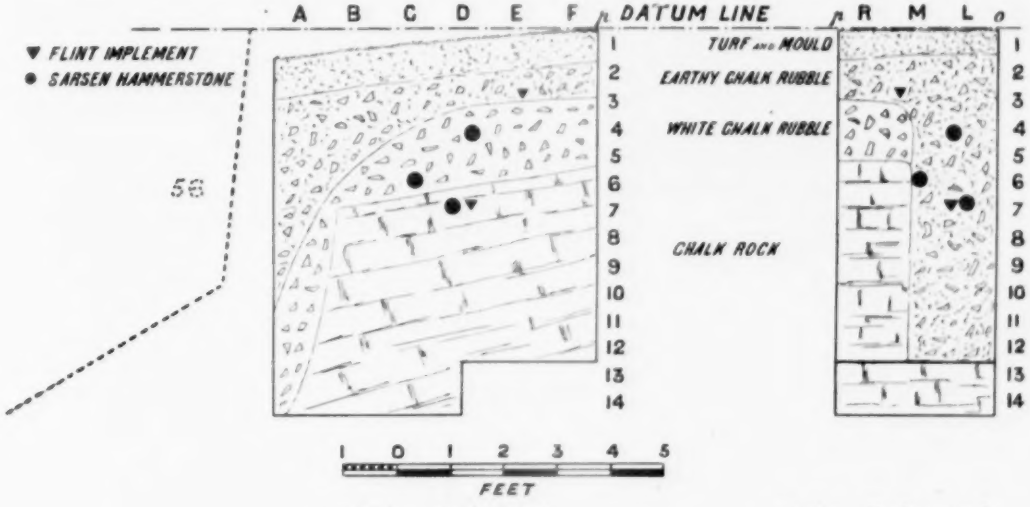
All the kinds of stone were represented. Pieces of hammerstones occurred in larger quantities than the chippings of the stones.

Chippings of the "bluestones" were in excess of those of ordinary sarsen, and there were fewer of argillaceous and micaceous sandstone than of diabase and porphyrite.

Other finds were:

In AM. Hammerstone with edge. Flint. Similar to fig. 16, *c*, but thicker at the butt end.

In ARM. Hammerstone with edge. White flint. Similar to fig. 17, *c*.



Section. South-west side. Section. North-west end.

Fig. 29. Excavation VI.

In HR. Small axe. Flint.

Layer 9.—All white chalk rubble. Chippings of the stones absent.

Below this layer only the following were found:

In *Layer* 13, below the base of the "bluestone" (diabase) monolith, No. 68, a piece of sarsen which had been chipped so that it could be used as a pointed hammerstone. Z. Weight 1 pound 2½ ounces. Fig. 20, *g*.

In 13 ALM. A piece of sarsen, 4 inches by 4 inches by 1 inch, with one surface tooled as in fig. 28.

In 14 AM. A flat rectangular piece of sarsen, 7 inches by 6 inches by 2½ inches, with one of its flat surfaces tooled as fig. 28, and having a very small stain of copper carbonate on the other.

EXCAVATION VI. Figs. 29 and 7.

After Excavation V had been completed the inclination of the monolith to the south-east was remedied by means of a hydraulic jack. The stone was now perfectly upright, and Excavation VI. was proceeded with. It was 6 feet long, 3 feet wide, and was carried down to 7 feet in depth, excepting in Divisions E F, where a step 1 foot high was left.

Layers 1 and 2 consisted of turf and mould, with earthy rubble at the north-west end, and contained much broken flint. Pieces of ordinary sarsen were in excess of the "bluestone" chippings. There were also several pieces of sarsen hammerstones. Of the "bluestones" there was most porphyrite, a little less diabase, still less "fissile rock," and only a few chippings of argillaceous sandstone.

In 2 DL. A piece of ancient pottery.

Layer 3. Earthy chalk rubble passing into chalk rubble in LM½.

The "bluestones" were largely in excess of ordinary sarsen, and all kinds were present, diabase and porphyrite chiefly, with but little argillaceous sandstone and "fissile rock."

A broken sarsen hammerstone and several fragments were found, also the following:

In EM. Hammerstone with edge. Grey flint similar to fig. 14, *c*.

In FR. Three fragments of ancient pottery.

Layers 4 *and* 5.—In Divisions A, B, C earthy chalk rubble pierced with rabbit burrows. At the bottom of Layer 5 the chalk rock was reached in Divisions F R M. It was then found that this rock extended only to about 1 foot 6 inches from the south-west side of the excavation, the other 1 foot 6 inches being chalk rubble mixed with more or less earth.

Overlying the chalk there was a layer of white chalk rubble.

When the subsequent layers were taken out the chalk rock was found to have been cut away to form an almost perpendicular face in a line with the middle of the long axis of the base of the monolith No. 56.

The other half of the excavation consisted of earthy chalk rubble down to its lowest point. This was riddled with rabbit holes to a depth of 6 feet 6 inches below the surface. The chippings of sarsen and "bluestones" in this half were mixed with broken glass, crockery, pipe stems, and other modern rubbish, and were not collected. In Layer 10 in this half, at a depth of 4 feet 6 inches from the surface, a modern preserved meat tin was found in one of the rabbit burrows[a].

The following were found in the part overlying the chalk: Chippings and fragments of the "bluestones" in slight excess of those of ordinary sarsen. The former were almost exclusively porphyrite and diabase, fissile rock being almost and argillaceous sandstone entirely absent. There were also several pieces of sarsen hammerstones, and a fragment of partially calcined flint.

[a] The occurrence of this modern article at so great a depth shows how absolutely necessary it is that the nature of the ground in excavations should always be recorded; and that, without this, a mere statement of the depth only at which an object is found may be of no scientific value whatever.

In 4 DL, a hammerstone which had also been used as a rubber. Weight 9½ ounces. Compact sarsen.

Layer 6.—South-west half, chalk rock overlaid by hard white chalk rubble except near the monolith.

It contained no stone chippings.

In CM there was a rude hache of compact sarsen.

Layer 7.—The south-west half consisted of chalk rock. The following occurred in the rubble of the other half:

In DL. A rude axe. Flint. Fig. 15, *d*.

In DL. Hammerstone, rounded. One part has been used as a rubber. Compact sarsen. Fig. 20, *k*.

Excavation VII. See plan (fig. 7).

This was only 2 feet 6 inches wide and extended to 6 feet from the corner of the stone. It was carried down to a depth of 7 feet, except at the west end, where a step of chalk rock about 1 foot 6 inches long and 1 foot high was left.

Layers 1 *and* 2.—Turf and mould with earthy chalk rubble.

Fragments of sarsen were more numerous than those of the "bluestones." There were also a few pieces of sarsen hammerstones.

The "bluestones" were chiefly represented by the "fissile rock" and porphyrite, there being less diabase and scarcely any argillaceous sandstone.

In 2 BM. A hammerstone with one well-rubbed face. Weight 14 ounces. Compact sarsen.

In 2 DM. A hammerstone. Compact sarsen. Weight 5 pounds 11 ounces.

Layer 3.—The ground was hard chalk rubble except in Division A and part of B, which was earthy rubble.

The stone chippings were confined to the earthy rubble, and consisted chiefly of ordinary sarsen and pieces of hammerstones. The "bluestones" were represented, for the most part, by diabase and porphyrite chips. "Fissile rock" was entirely absent.

Layer 4.—Hard chalk rubble with flints overlying the chalk rock and passing into earthy rubble at the end near the monolith. Stone chippings were extremely few, but both sarsen and diabase occurred together.

Layer 5.—Solid chalk rock.

Excavation VIII. (See plan (fig. 7).

This excavation was 2 feet 6 inches wide, 7 feet deep, and extended to a distance of 6 feet from the corner of the monolith.

The whole of the ground was chalk rubble containing more or less mould until Layer 13 was reached, where it consisted of hard white chalk rubble overlying the chalk rock.

It was so much traversed by rabbit burrows, especially below Layers 3 and 4, down to a depth of 6 feet below the datum line, that the original positions of the stone chips and implements could not be determined with accuracy. The numbers and letters on the objects

dug up in this excavation, hence, indicate the positions in which they were found and not necessarily those which they originally occupied.

Modern rubbish, broken glass, crockery, and pipes occurred at all depths in and near the burrows.

Layer 2.—Chippings and pieces of the "bluestones" were in much greater quantities than those of ordinary sarsen. Of the former the "fissile rock" and argillaceous sandstone were most common, but diabase and porphyrite were also present, as well as some pieces of sarsen hammerstones and the following:

In 2 FR. A rude axe. White flint. Similar to fig. 14, *b*.

In 2. FR. A very rude axe. Flint. Similar to fig. 17, *d*.

In this layer there was also found a copper nail with circular flat head. The surface of the head was gilt and divided into six segments by three incised lines.

Layers 3 *and* 4.—All the rocks were present.

Pieces of sarsen hammerstones and of ordinary sarsen were more plentiful than those of the "bluestones."

There was also a lump of micaceous sandstone.

In Layer 3 there was a broken nodule of iron pyrites.

The stone chippings occurring below these layers were not collected as the ground had been so much disturbed by rabbits; it was, however, noted that sarsen and "bluestone" always occurred together.

In Layer 5 at FR. Hammerstone, broken. Weight 4 pounds. Compact sarsen.

In Layer 5 at FR. Hammerstone. Weight 1 pound 4 ounces. Compact sarsen.

In Layer 5 in FL. Hammerstone with edge. Flint. Similar to fig. 16, *c*, but much shorter.

In 13 DM. A large deer's-horn pick (fig. 24) and several pieces of deer's horn were found imbedded in hard white chalk rubble just overlying the chalk rock.

Excavations A, B, C, D, E, and F.

In addition to the above excavations, six small holes, marked A, B, C, D, E, F on the general plan (Plate VII.), were dug for the insertion of the lower ends of the larch poles which were employed for strutting up the monolith. Chippings and pieces of the stones were found in all.

Excavation A. 3 feet 5 inches long, 3 feet wide, and 3 feet deep.

The chalk rock was reached at about 1 foot 3 inches below the turf, and in this space a flint hammerstone with edge, similar to fig. 17, *a*, and the following chippings of the stones were found. The "bluestones" were largely in excess of the ordinary sarsen, and consisted chiefly of argillaceous sandstone and diabase, with smaller amounts of the "fissile rock" and porphyrite.

Excavation B. 3 feet 6 inches long, 3 feet 6 inches wide, and 3 feet deep.

The chalk rock was reached at the same depth as in A. There was a much smaller quantity of stone chippings. All the stones were represented, sarsen being somewhat in excess of the "bluestones;" of the latter, diabase and "fissile rock" were most abundant.

There were, too, several pieces of iron pyrites, three small fragments of ancient pottery, and one of micaceous sandstone, just above the chalk.

Excavation C. 3 feet long, 2 feet 4 inches wide, and 3 feet deep.

Here the ground below the turf was all earthy chalk rubble. The chalk rock was not reached. There were but very few chippings of the stones, and they were accidentally thrown away.

A hammerstone of compact sarsen weighing 15½ ounces was also found.

Excavation D. 2 feet 11 inches long, 2 feet 4 inches wide, and 3 feet deep.

On the north-west, north-east, and south-east sides hard white chalk rubble, such as is usually found overlying the chalk rock, was met with at from 1 foot to 1 foot 5 inches below the surface, the remainder of the ground being earthy chalk rubble.

A moderate quantity of chippings of all the stones was found. The "bluestones" were in excess of the sarsen, and all the kinds were present, porphyrite being most abundant, and "fissile rock" almost absent.

A few pieces of micaceous sandstone and one fragment of ancient pottery were also dug up.

Excavation E. 2 feet 8 inches long, 2 feet 6 inches wide, and 3 feet deep.

At the south corner the chalk rock was reached at 1 foot 6 inches below the surface, and at other parts at a depth of 2 feet hard white chalk rubble.

Stone chippings were fairly numerous. Those of the "bluestones" largely exceeded the ordinary sarsen in quantity, but there was a considerable number of fragments of the hammerstone variety.

All the kinds of the "bluestones" were present, diabase being most abundant. There were only a few pieces of micaceous sandstone.

Two small fragments of ancient pottery were found 1 foot 3 inches below the surface, also a sarsen hammerstone weighing 1 pound 3 ounces.

Excavation F. 5 feet long, 2 feet 10 inches wide, and 3 feet 3 inches deep.

This excavation was made at the side of the south-west pier, No. 54, of the south trilithon.

The chalk rock was reached at the south-west side of the hole, about 3 feet from the surface.

About 1 foot below the turf, and to a distance of about two feet from the monolith, the entire space was closely packed with chippings of all the stones, together with two or three large lumps of sarsen, one of which measured 1 foot 6 inches by 1 foot 2 inches by 1 foot.

All these were more or less firmly cemented together with a calcareous concretion.

Splinters and pieces of sarsen hammerstones preponderated over those of ordinary sarsen, and the latter was found in much less quantity than the "bluestones;" but besides the chippings, however, several large irregular lumps of sarsen were also dug up, as stated above. As regards the "bluestones," there was much more porphyrite than diabase, and least "fissile rock" and argillaceous sandstone.

Seven small fragments of ancient pottery were found about 1 foot 6 inches below the surface, and a few pieces of micaceous sandstone.

Note on the Nature and Origin of the Rock-fragments found in the Excavations made at Stonehenge by Mr. Gowland in 1901. *By* Professor J. W. Judd, *C.B., LL.D., F.R.S., F.G.S.*

From the large collection of fragments which were submitted to me by Mr. Gowland, types of all the different rocks represented were selected, and thin sections having been made from them in the Geological Laboratory of the Royal College of Science, they were studied microscopically.

Before proceeding to detail the results of these studies, it may be well to state what had previously been done in the way of determining the exact nature of the materials employed by the builders of Stonehenge.

Sir R. C. Hoare, when writing his *Ancient Wiltshire* (1812-1820), appears to have sent to Mr. James Sowerby a small specimen of each of the stones forming the monument of Stonehenge. Sowerby described these fragments as falling into the following classes: i. "Fine-grained species of siliceous sandstone." ii. "An aggregate of quartz, feldspar, chlorite, and hornblende" (twenty-six in number). iii. One "is a siliceous schist." iv. Three others "are hornstone with small specks of feldspar and pyrites." v. "The altar stone is a micaceous fine-grained sandstone."[a]

In 1833 the Rev. W. D. Conybeare stated that "the smaller circles of Stonehenge consist of a variety of greenstone rock."[b]

Professor John Phillips in 1858 referred to Wales, Cornwall, and the elvans or greenstone dykes near Dartmoor as possible sources from which the "greenstones" of Stonehenge may have been derived.[c] He refers other rocks to the "compact felspar of Macculloch."

The same author in 1871 recorded the finding of shells in one of the blocks of sarsen at Stonehenge.[d]

In 1877 there appeared the very valuable essay of Professor N. S. Maskelyne

[a] Sir R. H. Hoare, *Ancient History of South Wiltshire*, 149, 150. Cf. *Wiltshire Archæological and Natural History Magazine*, xvi. 69, 70.

[b] *Gentleman's Magazine*, ciii. pt. ii. 452-454.

[c] See letter from Professor Phillips to Dr. Thurnam quoted in Long's "Stonehenge and its Barrows," *Wilts Archæological and Natural History Magazine*, xvi. (1876), 71.

[d] John Phillips, *Geology of Oxford and the Valley of the Thames* (1871), 447.

on the "Petrology of Stonehenge."[a] As the result of a careful study of very minute chips taken from the monoliths of Stonehenge Professor Maskelyne, who was assisted in the research by the late Mr. Thomas Davies, of the British Museum, classified the stones as follows: i. Sarsens. ii. The "grey micaceous grit of the "Altar-Stone." iii. Different varieties of "diabase" (including the majority of the so-called "bluestones") in which it was shown for the first time that augite and not hornblende was the predominant mineral. iv. Hornstones, of which it was found that four stones consisted, two of them having a "schistose structure." The microscopical characters of these rocks were illustrated in a plate, and analyses of the types iii. (Stone 33) and iv. (Stone 48) made by Dr. Prevost are given.

Professor Maskelyne in this paper refers to the numerous fragments and chips of rock found in the soil of Stonehenge, and points out that they are generally identical with the stones of the structure. He classifies them as: i. Diabasic dolerite and felsitic rock, some possessing the distinctive features of the "bluestone" monoliths of Stonehenge (these are very abundant). ii. Compact rocks with slaty cleavage. iii. Quartzose grits, with scales of brown mica or green grains (chlorite?). Professor Maskelyne's essay called attention to the great importance of the study of the monoliths of Stonehenge, and of the fragments buried in the ground within and around it. In succeeding years Mr. Thomas Davies carried these important investigations still farther by the study of specimens sent to him from time to time by Mr. William Cunnington.

On July 8th, 1881, no less than 172 chips of stone were obtained by Mr. Cunnington from three small holes at Stonehenge. These when submitted to Mr. Thomas Davies were classified by him as follows:

Diabase	39
Felsite	62
Quartzites with traces of felspar	8
Sarsen stone	9
Calciferous chloritic schist	49
Micaceous sandstone (like Altar-Stone)	5

In the paper in which this discovery is recorded,[b] it is mentioned that

[a] *Wilts Archæological and Natural History Magazine*, xvii. (1877), 147-160, with plate. See also *Proceedings of the Geological Association*, vii. 138-140.

[b] "Stonehenge Notes: The Fragments," by W. Cunnington, *Wilts Archæological and Natural History Magazine*, xxi. (1883), 141-149.

Mr. H. Cunnington had found two stumps of stones, one of diabase, and the other of schist, while the existence of buried bases of other stones had been demonstrated by probings with a pointed rod. Rock-fragments similar to those found within the enclosure of Stonehenge were also collected from several barrows in the vicinity. Some of the specimens, with sections from them, illustrating the fragments from Stonehenge which were examined by Mr. Thomas Davies for Mr. William Cunnington, are still preserved in the Mineralogical Department of the British (Natural History) Museum at South Kensington.

In 1893 Mr. William Cunnington submitted to Mr. Teall a collection of sections made from fragments, which were collected "mostly with rare exceptions, as noted, from under the turf within the area of the building" at Stonehenge. The thirty-four slides examined by Mr. Teall enabled him to class the rocks from which they were cut as follows:[a]

Diabases	10
Felsites	6
Calcareous chloritic schist	7
Grits and sandstones	5
Unnamed rocks (all of one type, of igneous origin and intermediate composition, but in a very unsatisfactory state of preservation)	6

One of the sandstones was glauconitic, while one of the "calcareous chloritic schists" and one of the diabases were taken from the stumps of stones discovered by Mr. H. Cunnington in 1881.

In studying the great mass of materials collected by Mr. Gowland, I have received invaluable assistance from previous investigators of the subject. Professor N. S. Maskelyne very generously placed at my disposal his original sections made from fragments chipped from the monoliths; while Dr. H. P. Blackmore allowed me to have the loan of the fragments themselves, which are preserved in the Salisbury Museum. Mr. Fletcher of the British Museum permitted me to inspect the specimens sent by Mr. William Cunnington to Mr. Thomas Davies, with the sections made from them, while Mr. Teall gave me further information concerning the sections examined by him. I must also mention the great assistance I have received from the "Bibliography of Stonehenge and Avebury,"[b] which has been so carefully compiled by Mr. W. Jerome Harrison.

[a] "Notes on Sections of Stonehenge Rocks belonging to Mr. W. Cunnington," by J. J. H. Teall, *Wilts Archæological and Natural History Magazine*, xxvii. (1894), 66-68.

[b] *Wilts Archæological and Natural History Magazine*, xxxii. (1901), 1-169.

The Chips of Stones employed in the Building of Stonehenge.

The series of fragments selected by me from the great collection made by Mr. Gowland fall into the following classes. The comparison of them with the rocks constituting the monoliths, especially with respect to the numbers of each type occurring as fragments and in the monoliths respectively, suggests considerations of very great interest and importance, both to the archæologist and the geologist.

I. *Sarsen Stones.*—The nature and origin of these masses of sandstone have been very fully discussed by Professor T. Rupert Jones.[a] They are concreted portions of a Tertiary sandstone, either of the Woolwich and Reading beds, as suggested by Sir Joseph Prestwich, or of the Bagshot beds, as maintained by Mr. Whitaker. All the usual characters of the different varieties of sarsen are illustrated among the fragments collected at Stonehenge. With the exception of casts of rootlets and stems, fossils are almost entirely absent from these sarsens. Sir Joseph Prestwich found in one of the monoliths of Stonehenge a layer of shells,[b] but I have not detected any trace of shells in any of the fragments I have examined, nor, so far as I am aware, have shells ever been found in any of the sarsens lying on the surface of the downs. In their microscopic characters, when studied in thin slices,[c] they show great differences according to their composition and state of induration. In some cases they are coarse-grained, in others very fine-grained; the sand grains of which they are composed are sometimes well rounded, at other times angular. Other minerals present in them besides quartz are felspars, more or less altered, mica, and glauconite, while chips of flint are in some cases not rare. The grains sometimes show only a small quantity of cement between them; at other times this siliceous cement is large in quantity and the outlines of the original grains can be traced only with difficulty, the rock being almost undistinguishable from a quartzite. Occasionally the cement around the grains

[a] "History of the Sarsens," by Professor T. Rupert Jones, Part I., *Wilts Archæological and Natural History Magazine*, xxiii. (1886), 122-154; Part II. *Geological Magazine*, Dec. IV. viii. (1901), 54-59 and 115-125.

[b] Prestwich, *Geology of Oxford and the Thames Valley* (1871), 447.

[c] "Note on the Structure of Sarsens," *Geological Magazine*, Dec. IV. viii. (1901), 1.

shows the radiated or spherulitic appearance which is so well known in the case of the Igltham stone described by Professor Bonney.[a]

All of these various features may be found in different specimens of the sarsens which occur among the fragments found in the excavations at Stonehenge. Of the relative paucity of the fragments of sarsen found in the excavations, when compared with those of the "bluestones" and other rocks, I shall have to speak further in the sequel.

II. *Ophitic Diabase.*—These rocks have been fully described by Professor Maskelyne, and all the varieties which he mentions as occurring in the "bluestone" monoliths of Stonehenge find their parallels among the fragments collected in the recent excavations. The rocks differ greatly in size of grain, some being coarse-grained and porphyritic, others being comparatively fine-grained and almost compact in structure. The ophitic character is in some cases much more marked than in others. The rocks differ also greatly in the amount of alteration they have undergone. In some cases the felspar (labradorite?), the augite, and the magnetite or titanoferrite are all quite fresh and unchanged, so that the rock might be called an "ophitic dolerite." More frequently the felspar has been largely converted into epidote and zoisite (with secondary albite), the augite into various chloritic minerals, and the titanoferrite into leucoxene.

III. *Highly altered Basic Tuffs and Agglomerates.*—These rocks are generally of a fissile character, and some of them have been variously referred to by different authors as "schistose rocks" and "calcareous chloritic schists." They consist of chlorite and leucoxene, with various colourless minerals (zoisite, albite, etc.), the products of the alteration of minerals found in basic lavas. In many cases the rock is evidently made up of more less angular fragments, and not unfrequently these fragments are vesicular, the vesicles being filled with crystalline calcite. In consequence of this, most of these rocks effervesce freely with acid. It is evident that the rocks are of volcanic origin, and are ancient basic tuffs and agglomerates. In some cases the amount of alteration which they have undergone is extreme; only traces of their original clastic character can be detected, and the rocks have evidently become more or less foliated in structure. The number of fragments of rock of this type is so great that it is probable a number of stones of this kind were used in building Stonehenge. Owing, however, to their fissile character, and the ease with which they succumb to weathering agencies, all seem to have dis-

[a] *Geological Magazine*, Dec. IV. v. (1888), 299.

appeared except a stump, which was discovered by Mr. H. Cunnington in 1881,[a] and referred to by Mr. W. Cunnington as S 28 of his plan.

IV. *Altered Rhyolites and Dacites.*—These rocks have been variously referred to by previous authors as "hornstones," "porphyrites," and "felsites." They are probably the compact felspar of Phillips. One striking porphyritic variety has often been referred to under the name of "black quartzite with felspar crystals." It has occurred not only among the fragments which were obtained by Mr. Gowland, but also in the series of specimens collected from the surface by Mr. Cunnington, while one large piece was found in one of the barrows (No. 41, Hoare's map). It is probable that a stone consisting of this material once existed at Stonehenge, but has now disappeared. The striking appearance of the rock would probably lead to "specimens" being frequently knocked off from it, and thus, in the course of years, the whole stone may have disappeared.

All of the rocks of this class show very strikingly the "fluxion structure," and there is no doubt that they represent old lavas of a viscid character, in which the material has been drawn out in the direction of the flow. Professor Maskelyne has remarked upon the existence of clastic structure in the Stones 38, 40, 46, and 48 of the plan. This would seem to indicate that these stones represent not lavas but tuffs or agglomerates composed of lava-fragments. But upon this point I would suggest that a brecciated appearance is often exhibited by true lavas, like the well-known "piperno" of the Pianura near Naples. Indeed the name of "eutaxites" of Fritsch and Reiss, and the term "eutaxitic structure," are recognition by petrographers of the fact of the existence of such "brechoidal" lavas. Mr. Rutley has shown that the celebrated porphyry of Djebel Dokhan, the original *profido rosso antico*, often shows the same brecciform structure. From the analysis of Dr. Prevost of the Stone 48 of the plan, and from the microscopic characters of all these rocks, it is evident that they represent old lavas of acid composition, which were either originally hornstone-like in structure ("hornsteinartig") or more probably were more or less perfectly glassy, and have acquired their present hornstone-like lustre by secondary devitrification. Dr. Prevost's analysis, showing an excess of soda over potash, points to the conclusion that they were rather quartz-andesites or dacites than rhyolites. Some of them may have been, as suggested by Professor Maskelyne, the consolidated and altered tuffs of such lavas.

V. *Sandstones, Grits, and Quartzites.*—The rock of the "altar-stone," a micaceous sandstone, appears to be represented among the fragments dug up,

[a] *Wiltshire Archæological and Natural History Magazine*, xxi. 142.

and there are other more highly micaceous and very fissile varieties of sandstone among the fragments found. The rock of the altar-stone was thought by Professor John Phillips to resemble certain Devonian and Cambrian rocks; Professor Maskelyne pointed out its similarity to the well-known stone in the Coronation Chair, which, as Sir Andrew Ramsey showed, is almost certainly Old Red Sandstone from Perthshire; the late Mr. Thomas Davies states that a very similar rock of Devonian age is found outcropping at Frome in Somerset. The more fissile and very micaceous varieties among the fragments are so similar to the Yorkshire flagstone, that there can be very little doubt of their derivation from rocks of Carboniferous age. With the sandstones are some quartzites, which do not appear to be indurated sarsen stones, but must be probably referred to true quartzites, like those of the Stiper Stones, Hartshill, etc. Altogether among these siliceous rocks we appear to have possible representatives of various pre-Cambrian and Palæozoic sandstones.

VI. *Greywackés.*—These are rocks consisting mainly of grains of quartz and of much altered felspar, with more or less argillaceous matter. They belong to the class of rocks so fully represented in the Scottish Borderland, and have evidently been derived from the more or less imperfect disintegration of crystalline rocks. Although such rocks are especially abundant in the Scottish Borderland, similar materials are found in the Lake District, North Wales, and Devon and Cornwall. Their absence from the "bluestones" of Stonehenge, while they are represented in considerable numbers among the fragments from the excavations, is doubtless due to their fissility and ease of decomposition. Stones of this kind set up on edge and exposed to the action of frost could not withstand such agencies like the "diabases," "hornstones," and "sarsen-stones," which constitute the survivors of the Stonehenge assemblage of monoliths. There are numerous gradations between the areno-argillaceous rocks and the more purely argillaceous flagstones and slates.

VII. *Argillaceous Flagstones and Slates.*—Among these we have a perfect gradation from coarse imperfectly fissile rocks, with more or less sandy material in their composition, to very pure argillaceous rocks which may be described as clay-slates. Like the rocks of the last group, these flagstones and slates would be especially liable to break up under the action of frost, especially when the fissile masses were set with their cleavage planes vertical.

VIII. *Glauconitic Sandstone.*—A few fragments of a fine-grained sandstone with glauconitic grains occurred. A similar rock containing foraminifera was also among the fragments of which slides were sent by Mr. Cunnington to Mr. Teall.

These rocks were probably Cretaceous in age (Upper Greensand?). Their presence may be accidental, though it is just possible that a boulder of this kind might have been utilised by the architects of Stonehenge.

IX. *Flints*, both in their ordinary condition and whitened or bleached condition, occur. These are probably fragments broken from the flint-tools in working, or sometimes, it may be, fragments struck off in renewing the points of the tools. The flint fragments do not seem to be sufficiently numerous to suggest that in either of the comparatively small excavations made we have come upon a "workshop" where the rude flint-tools were fashioned. It is not at present possible to say, therefore, whether the flint-tools were made at Stonehenge or elsewhere. One of the whitened chalk-flints showed in thin sections specimens of *Globigerina cretacea*, with sponge spicules and traces of other fossils.

Most of these rock-fragments are perfectly angular, and would appear to have been struck off from the monoliths during shaping and dressing, or from the stone tools used in the work.

Only the hardest and most durable of the rocks among the fragments (diabase and rhyolite, etc.) are found to be represented among the existing stones in the "bluestone" circles of Stonehenge. The basic tuffs, the greywackés, the flagstones, and the slates are all rocks which, as we have seen, are softer, more easily broken, and at the same time more susceptible to the action resulting from atmospheric changes than the diabases and rhyolites (hornstones). As we have already pointed out, rocks of a fissile character when set on end would be quite unable through a long series of years to withstand the constant alternation of rains and frost.

The two "bluestone" circles of Stonehenge probably contained originally 30 and 15 upright stones respectively, of which only 19 of the former and 11 of the latter remain. Possibly imposts existed originally for each pair of bluestones, like the Stone 150, the only one of the kind which can now be identified. It has sometimes been assumed that Stonehenge was a monument that was never completed. I would suggest, on the contrary, that it was a completed monument of which only the most durable materials have survived the action of weather and the ravages of time.

It is a very significant circumstance that Mr. Cunnington found the base of a "schistose" upright in the outer "bluestone" circle between the Stones 32 and 33 of the plan, and the gaps in both the bluestone circles are strikingly suggestive of a considerable number of stones having disappeared.

Rocks used as Tools by the Builders of Stonehenge.

The materials employed as mauls and axes, of which such an interesting collection was made by Mr. Gowland, are also worthy of some attention. From small chips broken from the eight mauls, with which Mr. Gowland has supplied me, I have had sections cut. They all prove to be masses of "sarsen" of exceptional hardness and induration, approaching quartzite in texture. They have evidently been selected for the work in which they were employed owing to their great hardness and toughness.

The chief features of the rock of these several mauls are as follows:

1 is a very fine-grained rock of great hardness. The cement between the grains is so tough that many of the quartz particles are broken across in the fractured surface, giving rise to a peculiar lustre. Under the microscope the rock is seen to be made up of quartz-grains, mostly subangular, with some partially decomposed felspar and black magnetite (?), the whole evidently derived from crystalline rocks (granite, etc.). The siliceous cement between the grains is almost entirely crystalline.

2 is very similar to the last, but with some coarser grains. The siliceous cement between the grains, however, is less perfectly crystallized, and under the microscope with polarized light resembles the polysynthetic quartz in cataclastic rocks.

3 is similar to 2, with the exception that the siliceous cement between the sand-grains is still less perfectly crystallized and is almost chalcedonic in character.

4 is almost identical in character with 2, consisting of grains of sand of very unequal size.

5 is much coarser in grain than any of the preceding varieties, and the siliceous cement between the large sand-grains is of a perfectly chalcedonic character.

6 is very similar to the last, being rather coarse-grained, but with the chalcedonic cement assuming a somewhat radiated structure around the sand-grains.

7 is a fine-grained rock, very similar to 1 in the size and character of the sand-grains, but the cement is chalcedonic rather than perfectly crystalline.

8 is a much coarser-grained variety with a chalcedonic cement. In 6 and 8 the radiated fibrous quartz crystals give an appearance resembling that of the well-known Ightham Stone, described by Professor Bonney.

The other smaller hammers are fragments of crystalline rocks and quartzite, such as might be obtained in any glacial drift or gravel deposit. The flints of which the axes are made do not offer any special points of interest. They may have been obtained in the immediate locality.

Sources from whence the Materials of Stonehenge were derived.

That the great sandstone monoliths of Stonehenge were originally "grey-wethers" lying upon the surface of the Chalk Downs, probably at no great distance from the spot where the structure stands, there can be no reasonable doubt. The comparative paucity of fragments of sarsen-stone, especially those of large size, in the excavations recently made, points to the conclusion that these large monoliths were selected for their size and shape, and then rudely trimmed *at the spots where they were found*. Only the final dressing of the surfaces of the stones, with perhaps the carving of the tenons and mortices, would appear to have been left to be executed at the place of erection. It is scarcely conceivable that in dealing with the transport of such bulky and heavy masses the builders of the monument would not have reduced the weight of the stones as far as possible before attempting their removal. The proportion of sarsen to other fragments in the soil of Stonehenge fully supports the conclusion that the rough dressing was performed before the stones were brought to the place of erection.

With respect to the "bluestones," it is no less obvious that they were for the most part chipped into the required forms and dressed *near the place of their erection*. This is shown by the circumstance that, within the limited area of the recent excavations, such a very large quantity of angular chips of these "bluestones" have been found.

This fact, I think, completely negatives the old traditions concerning Stonehenge, that it consisted of a circle of "bluestones," which had acquired a certain sanctity in a distant locality, and had been transported from the original home of the tribe, when it emigrated or was driven to Salisbury Plain, or that it was a trophy of war, the larger monoliths being afterwards erected around the primitive sacred stone-circle. If this had been the case, it is impossible to believe that stones regarded with such veneration, and transported with such difficulty from distant localities, would have been reduced to something like half their bulk (as they must have been in many cases) before re-erection.

Many attempts have been made to suggest a probable locality from which the "bluestones" of Stonehenge may have been brought. These have all been based upon the assumption that the present standing stones represent the whole of the "foreign rocks" employed. As we have seen in the preceding pages, however, the "bluestones" now remaining at Stonehenge probably represent only the hardest and most durable of the materials employed, many stones of soft and

fissile character having disappeared entirely, owing to the action of the weather and the assaults of relic-mongers, during the long period of the existence of the monument.

The older authors like Conybeare have insisted that the nature of the stones is not inconsistent with the tradition that the circle was transported by a tribe from Ireland from the neighbourhood of Kildare?

Professor John Phillips suggested Wales, Cornwall, and Dartmoor as possible localities from which the "bluestones" of Stonehenge may have been brought.

The late Sir Andrew Ramsay wrote as follows: the "bluestones" "do not resemble the igneous rocks of Charnwood Forest, and without asserting that they came from Wales or Shropshire, I may state that they are of the same nature as the igneous rocks of part of the Lower Silurian region of North Pembrokeshire, of Caernarvonshire, and of the Llandeilo flag district of Montgomeryshire, etc., west of the Stiper Stones."[a] Professor Maskelyne was inclined to regard North Wales or Cumberland as the districts from which the stones might have been derived.[b] Mr. Teall points out that diabases of the Stonehenge type are widely distributed in the South-west of England, and that all the rocks of which he had seen fragments from the soil "belong to types which are undoubtly represented in the West of England."[c]

But all attempts to suggest a locality in which all the "bluestones" might have been found by a primitive tribe and transported by them to Salisbury Plain are confronted with one grave difficulty. Is it conceivable that these skilful builders would have transported such blocks of stone *in their rough state* over mountains, hills, and rivers (and possibly over seas), in order to shape them at the point of erection, when the rough-hewing of the blocks at the place where they were found would have so greatly diminished their weight and the difficulties of their transport? The same people, as we have seen, in dealing with the blocks of sarsen-stone (which were probably moved only a few hundreds of yards) would appear to have left only the final dressing to be done after their transport, and to have reduced their weight as far as possible before removal.

I have long believed that the explanation of the true source of these "foreign rocks" is to be found in the circumstance that such materials are constantly found

[a] *Memoirs of the Geological Survey of England and Wales.* Geology of part of Wiltshire and Gloucestershire (sheet 34) (1858), 43.

[b] *Wilts Archæological and Natural History Magazine*, xvii. (1877), 157.

[c] *Wilts Archæological and Natural History Magazine*, xxvii. (1894), 67.

transported as boulders of the glacial-drift. It is true that the "southern limit of the boulder clay" is usually placed by geologists considerably to the north of Wiltshire; but it is a well-known fact that scattered boulders often occur far to the south of this limit. The sheets of boulder clay which now cover so large a part of the country are merely relics of an originally much more widely spread formation.

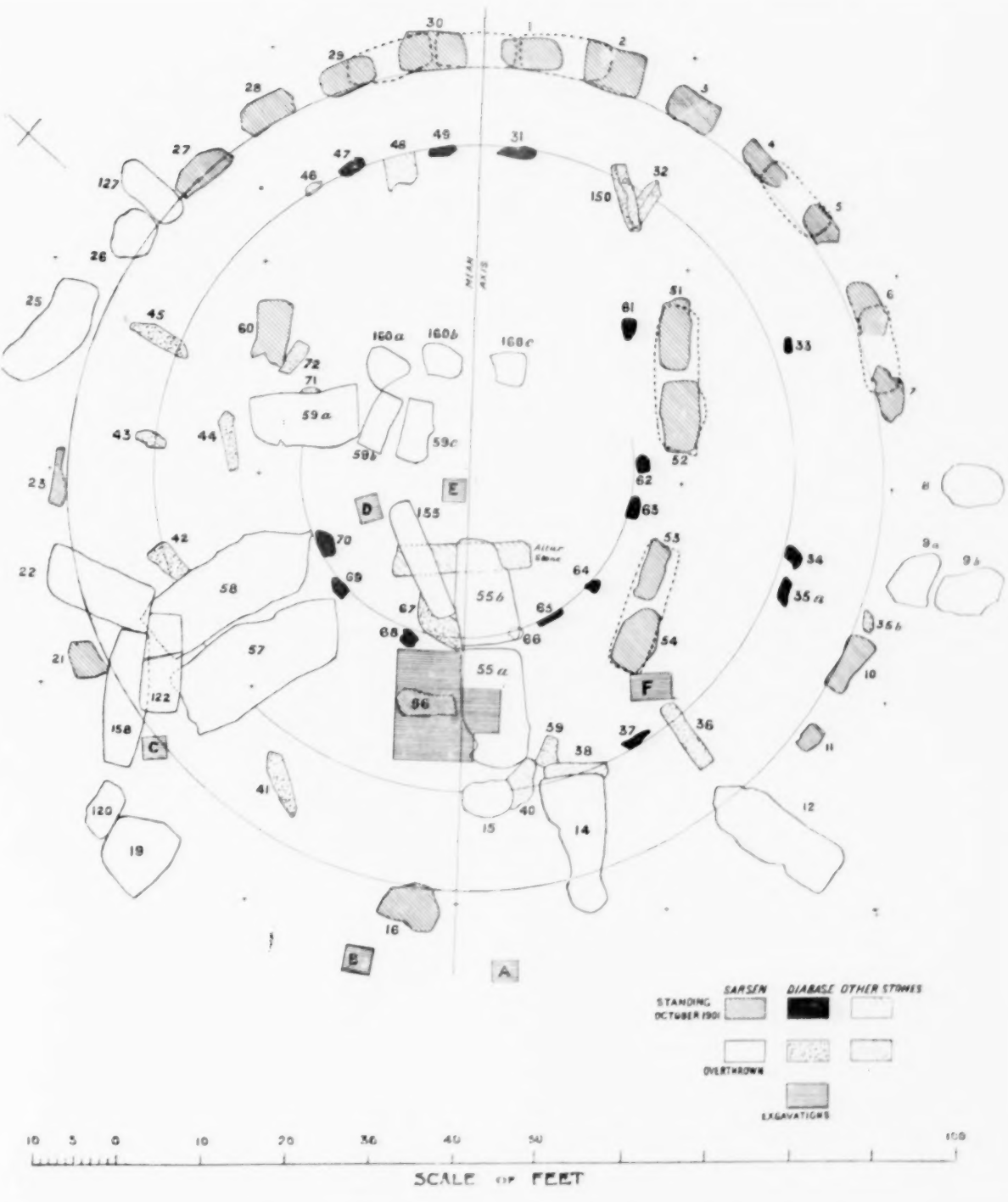
In many places the boulder clay has been greatly diminished in thickness by denudation, and deep valleys have been cut through it by the existing rivers. Many tracts where the boulder clay was thin have probably been swept quite bare of the formation, except for the larger boulders that would be left behind. A proof of this is found in the fact that the gravels of the rivers of the south of England, including those which drain Salisbury Plain, contain many fragments of "foreign rocks" which must have been derived from the boulder clay, and among these it would not be difficult to select representatives of the "bluestones" and fragments from the soil of Stonehenge. I have myself seen a boulder of a slaty rock, comparable in size to the largest of the "bluestones" of Stonehenge, on the hills to the south of London.

It may doubtless be objected that such large boulders of foreign rocks do not now occur anywhere upon Salisbury Plain. But it must be pointed out that rocks of considerable hardness and durability are everywhere sought for and utilised for millstones, gateposts, and for road-metal. Even the widely distributed sarsen-stones are rapidly disappearing, the blocks, especially the harder ones, being broken up and carried away for building stones and road-metal; and it is certain that the much more sparsely distributed boulders would, from their peculiar characters, be the first to attract attention, and be gradually removed by the races of men who have successively inhabited the district. In the South of England large boulders of granite and other large rocks when found, as they occasionally are, if not preserved as "curiosities" like that on Southsea beach, very soon disappear, being broken up and utilised in various ways.

In conclusion then I may repeat my conviction that if the prevalent beliefs and traditions concerning Stonehenge were true, and the "bluestone" circles were transported from some distant locality, either as trophies of war, or as the sacred treasures of a wandering tribe, it is quite inconceivable that they should have been hewed and chipped, as we now know them to have been, and reduced in some cases to half their dimensions, *after having been carried with enormous difficulty over land and water, and over hills and valleys.* On the other hand, in the

glacial drift, which once probably thinly covered the district, the glacial deposits dying out very gradually as we proceed southwards, we have a source from which such stones might probably have been derived. It is quite a well-known peculiarity of the glacial drift to exhibit considerable assemblages of stones of a particular character at certain spots, each of these assemblages having probably been derived from the same source.

I would therefore suggest as probable that when the early inhabitants of this island commenced the erection of Stonehenge, Salisbury Plain was sprinkled over thickly with the great white masses of the sarsen-stones ("greywethers"), and much more sparingly with darker coloured boulders (the so-called "bluestones"), the last relics of the glacial drift, which had been nearly denuded away. From these two kinds of materials the stones suitable for the contemplated temple were selected. It is even possible that the abundance and association of these two kinds of materials, so strikingly contrasted in colour and appearance, at a particular spot, may not only have decided the site, but, to some extent, have suggested the architectural features of the noble structure of Stonehenge.



GENERAL PLAN OF STONEHENGE, 1902.

Published by the Society of Antiquaries of London, 1902.

IV.—*Excavations at Caerwent, Monmouthshire, on the Site of the Romano-British City of Venta Silurum, in* 1901. *By* Thomas Ashby, *Jun., Esq., M.A., F.S.A.*, Alfred E. Hudd, *Esq., F.S.A., and* A. T. Martin, *Esq., M.A., F.S.A.*

Read 16th January, 1902.

The work for the year 1901 began on 10th June, and was continued till 22nd October. It consisted in the excavation of the west wing of House No. 2, the rest of which had been uncovered in 1900, and of the whole of House No. 7. House No. 8, which was partly excavated in 1901, has been completed (with Block A) during June and July of the present year, 1902. Excavations were also carried on in the field adjoining the north gate, now the property of Lord Tredegar, F.S.A., the cost of which was entirely defrayed by him. As, however, these excavations are by no means complete, and many problems which they present still await solution, it has been thought better to postpone all detailed report of this portion of the work until next year.

The work on both sites was carried on under the supervision of Messrs. T. Ashby, jun., A. E. Hudd, and A. T. Martin.[a]

The point of greatest interest presented by the buildings described in the present report lies in the peculiarity of their ground-plans. Like House No. 3, described in the report for 1900,[b] House No. 2 and House No. 7 (this applies to the latter in its later though not in its earlier form) differ from the type

[a] The Committee desire to express their obligations to Messrs. Drake and Pizey, architects, of Bristol, who are in large measure responsible for the plan, and have given much time and trouble to it, and also to Mr. William Moline, of Clifton, who has kindly allowed them to make use of several photographs taken by him.

[b] *Archaeologia*, lvii. 295, *sqq.*

commonly found at Silchester in having rooms and corridors arranged round all four sides of the central court, instead of round three sides of it only. Caerwent seems, therefore, to possess a type of house, which cannot at present be exactly paralleled anywhere in Great Britain.

All the buildings with which we have to deal have been largely reconstructed, and the earlier foundations can be traced to a considerable extent. This reconstruction becomes especially interesting in House No. 7, where the progress (or the reverse) of the decorative art as exhibited in the wall plaster and the mosaic pavements can be traced. The earlier walls, where they have not been incorporated with later, are shown in outline; while the later walls which are not preserved above the level of the foundations are shown with hatched lines.

It is interesting to note that the block formed by House No. 7 and House No. 8 was taken by Seyer,[a] the historian of Bristol, though of course wrongly, to be the Praetorium. He says:

"Near the western gate I suppose stood the Prætorium. I discovered a cross wall about 90 yards in length; its breadth I found to be 2½ yards; and the lime-burner told me that what I measured was only half its breadth; for there was another wall of the same thickness, which ran close by its side, making the whole breadth 5 yards, and that this had been removed about a week ago by the owner of the field on the west side. I saw the truth of what he told me by the appearance of the ground, and can only account for it by supposing that the two walls were built at different times. . . . There are no remains of a cross wall joining this to the city wall; but the trace of the agger on which it stood is very evident: the stones have probably been long ago removed, the field being in good cultivation, and perhaps in a year or two more the thick wall above-mentioned will be only discoverable in the same manner. The other" (*i. e.* the north) "wall of the Prætorium, I suppose, went along by the side of the main street; but the turnpike road has most likely consumed its remains. Near the south-west corner of the Prætorium, on the outside, are considerable ruins, probably the remains of some building. Here they had lately, in digging up the stones, uncovered a wall, which seemed like the inner wall of a room, and had dug up two large wrought stones. One was the turned base of a column,[b] about 1½ feet high, having a square hole on the top by which to fasten it by lead or iron to the next piece of the shaft; the other stone was about 2 feet high, somewhat in shape of a cone, and this likewise appeared to be turned, and had a square hole on the top. . . . There is another stone of nearly the same shape and dimensions at the door of the first house on the left hand when you enter at the eastern gate, but I forgot to ask where it came from. All three stones are of sandstone, such as at Sudbrook Cliff, and a stratum of which, I believe, runs not far from Caerwent."

[a] See *Journal of British Archæological Association*, iv. (1848) 250.

[b] The reference is to the capital described in *Archæologia*, lvii. 302, and fig. 5.

We now proceed to describe the several houses in detail.

House No. 2.

The building which we have called House No. 2 is very extensive, measuring 118 feet north to south, by 250 feet 6 inches east to west, that is, as far as the west wall of Room 25. No evidence, however, of its having been divided into two or more separate houses remains, and it seems to have always formed one whole.[a]

A street runs along its north side, between it and House No. 7, and extending on the west almost up to the city wall,[b] while on the east it passes along the north side of House No. 6. From trustworthy information as to the discoveries of Roman walls which have been made in the churchyard, it may be taken to have run straight on, about 50 feet[c] to the south of the parish church, and to have joined

[a] The measurements of the rooms of House No. 2 are as follows: Courtyard, 85 feet north side 87 feet south side, 49 feet east side, 46 feet west side; Room 1 (corridor), 61 feet 3 inches by 8 feet 9 inches; Room 2 (corridor), 93 feet 6 inches by 9 feet 3 inches; Room 3, 21 feet by 19 feet 6 inches; Room 4, 21 feet by 6 feet 3 inches; Room 5, 22 feet by 32 feet 9 inches; Rooms 6 and 7 (corridor), 74 feet by 7 feet; Room 8, 14 feet 6 inches by 6 feet; Room 9, 13 feet 6 inches by 19 feet 6 inches; Room 10, 6 feet 6 inches by 19 feet 9 inches; Room 11, 5 feet 9 inches by 6 feet; Room 12, 19 feet 9 inches by 13 feet 6 inches; Room 13, 9 feet 9 inches by 19 feet 6 inches; Room 14, 12 feet 9 inches by 20 feet; Room 15, 19 feet 3 inches by 20 feet; Room 16, 16 feet 9 inches by 20 feet; Room 17, 8 feet 6 inches by 10 feet; Room 18, 14 feet by 8 feet; Room 19, 19 feet 6 inches by 20 feet; Room 20, 19 feet by 19 feet 3 inches; Room 21, 14 feet by 10 feet 3 inches; Room 22, 20 feet by 41 feet; Room 23, 48 feet 6 inches by 22 feet 6 inches; Room 24 (yard), 64 feet wide; Room 25, 12 feet by 29 feet; Room 26, 16 feet by 11 feet 9 inches; Room 27, 16 feet 6 inches by 21 feet; Room 28, 15 feet 6 inches by 17 feet 3 inches; Room 29, 23 feet 6 inches by 17 feet; Room 30, 14 feet 6 inches by 17 feet 6 inches; Room 31, 13 feet 6 inches by 13 feet; Room 32, 14 feet by 7 feet; Room 33, 19 feet square; Room 34, 12 feet by 6 feet; Room 35, 11 feet square; Room 36, 12 feet 6 inches by 7 feet; Room 37, 20 feet by 23 feet 6 inches; Room 38, 23 feet 6 inches by 23 feet; Room 39, 7 feet 9 inches by 42 feet 9 inches; Room 40, 8 feet by 30 feet; Room 41, 62 feet 9 inches by 8 feet 6 inches; Room 42, 8 feet by 16 feet; Room 43, 8 feet 6 inches by 16 feet; Room 44, 23 feet by 16 feet; Room 45, 18 feet 6 inches by 16 feet; Room 46, 6 feet by 2 feet 9 inches; Room 47, 5 feet by 2 feet 9 inches; Room 48, 5 feet 9 inches by 2 feet 9 inches; Room 49, 49 feet 6 inches by 14 feet 6 inches (average width); Room 50, 20 feet by 8 feet 6 inches; Room 51, 9 feet 6 inches by 9 feet; Room 52, 21 feet 3 inches by 13 feet 3 inches.

[b] When the mound was in existence, it must have fallen into the street which ran below and on the east of this, see pl. IX. section E F.

[c] The measurement is taken from the south wall of the old south aisle, which was about 10 feet in width. From the chancel wall the distance would be 60 feet.

the road leading to the south gate of the city precisely at the site of the old cross (see Ordnance Survey Map). It ran, therefore, practically parallel to the main road through the town, and formed an important subsidiary line of communication. It seems possible to trace a change in its level and width at the period when the north wing of House No. 2 was reconstructed.

Taking the main block first, we find that the rooms are arranged round four sides of an open quadrangular space, which was very likely a garden, as no traces of the pitching or gravel flooring which would be expected in a yard were discovered.[a] There were apparently corridors round all four sides of this central space, probably with many windows opening on to it, though this is naturally only a surmise.

The house has been much altered, especially on the north side, where an entire reconstruction has taken place, though the former plan seems to have been almost exactly reproduced. At both periods the house belonged to the courtyard type, differing from it, however, as usually seen in England, in having rooms round all four sides of the central space.

The difficulties of making out the arrangement of this house are much increased by the fact that many of the walls have been entirely removed by searchers for building materials in mediæval or modern times, leaving nothing but the foundations, and sometimes only the gravel on which they rested.

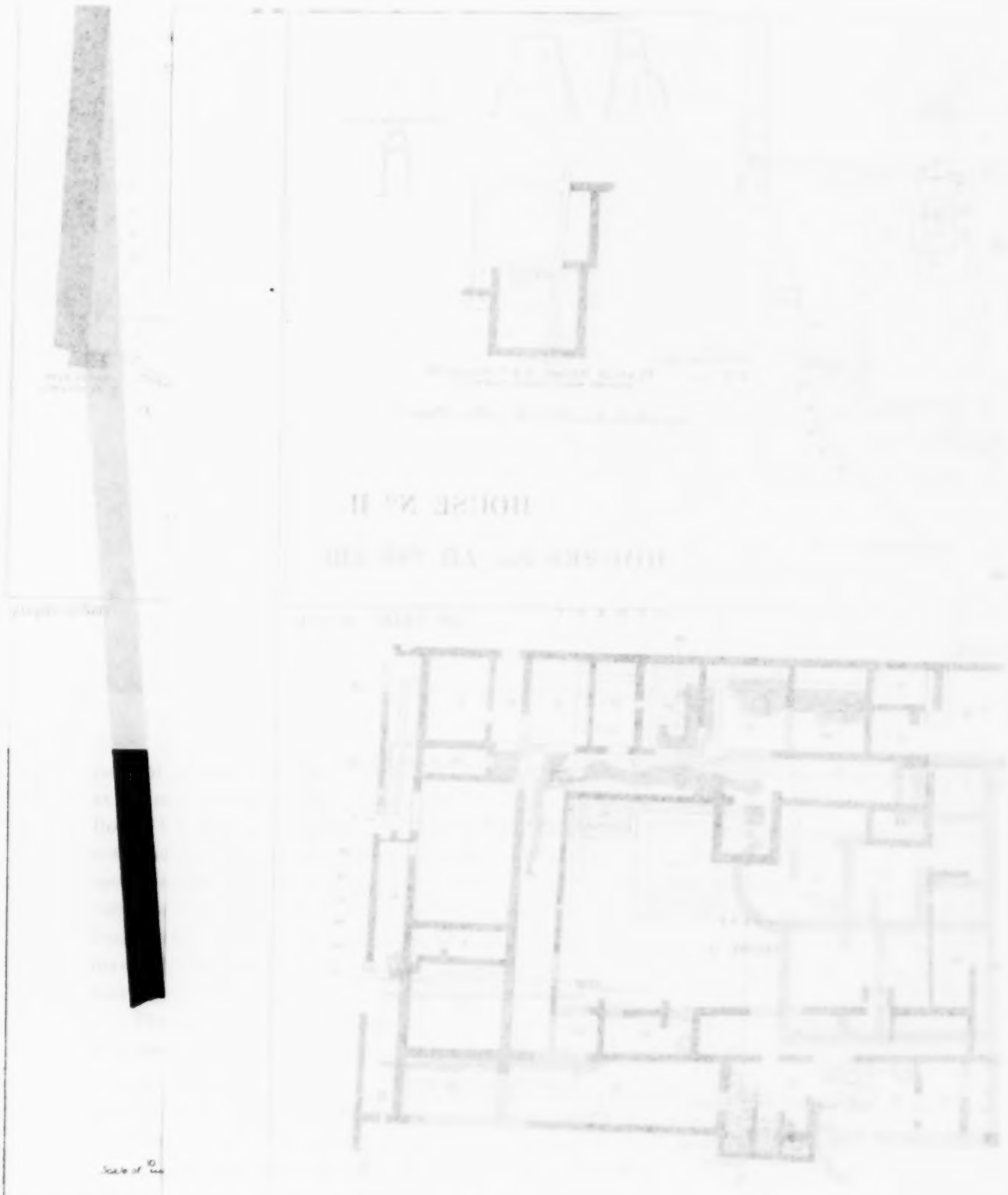
Upon each side of the east wing runs a long corridor. That on the east side (Nos. 6 and 7) extends for the whole length of the building, and its east wall is prolonged to the south until it almost reaches the north-east angle of House No. 3.[b] Of its floor no traces could be found, except close to the north wall of Room 3 and also a little to the north of this, where there is some stone flagging. Just south of this point there was an entrance from the street,[c] which ran along the east wall of the house, between it and House No. 4. The north side of this is marked by a large block of stone about 2 feet 6 inches square, up to which runs the slightly raised edging of the flags just mentioned, but the south side is indefinite, the wall having perished.

On the west of this corridor, between it and the other corridor (No. 1) are three rooms (5, 4, 3). Room 5 has lost its floor, which was once a tessellated

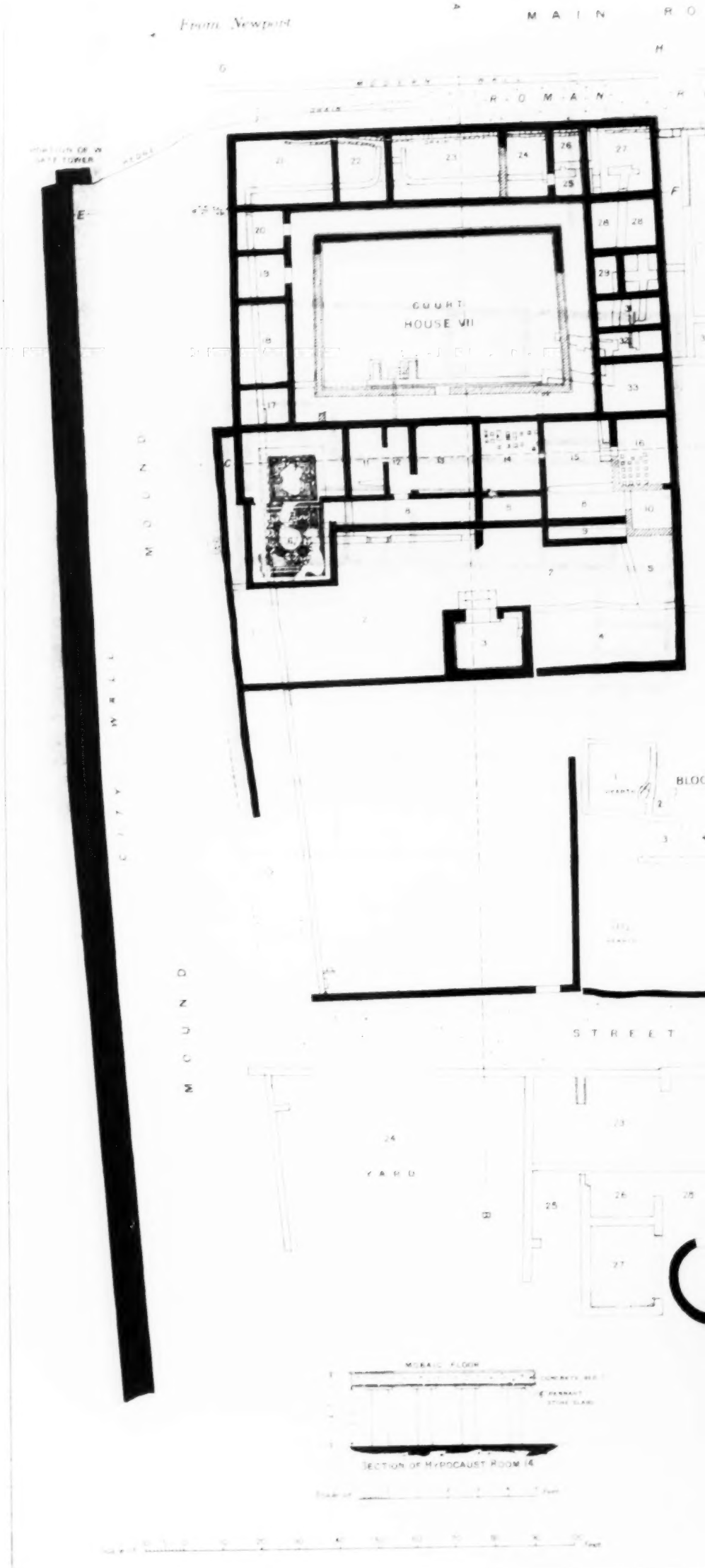
[a] The only thing of interest discovered in it was a fragment of a small sandstone cornice, broken into four pieces, which fitted together, the whole being 2 feet 11 inches in length.

[b] See plan, *Archæologia*, lvii. plate xl. To the east of it are traces of a gravel floor, and a piece of concrete flooring, 3 to 4 inches thick, was found.

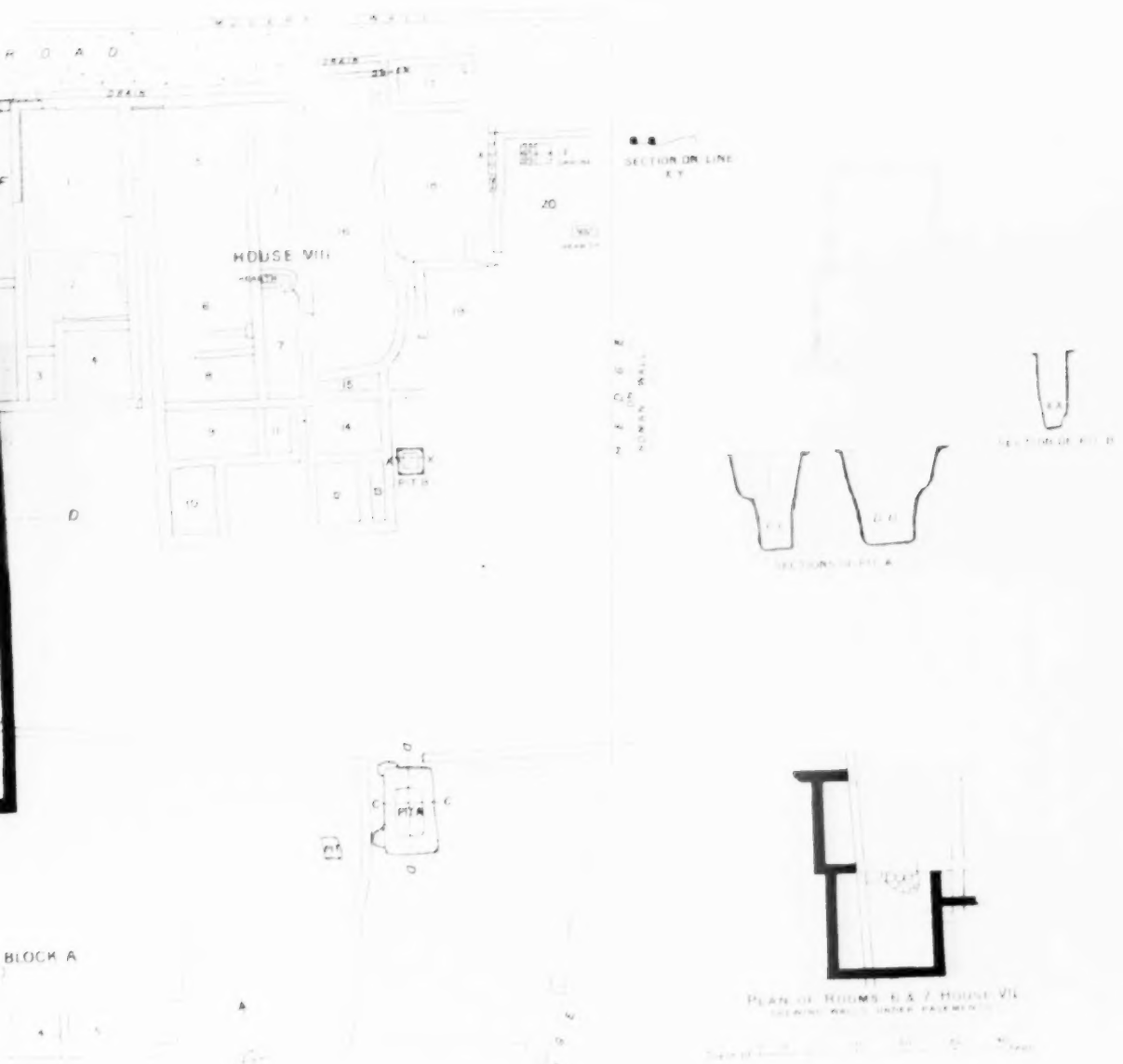
[c] The width of this street is 19 to 20 feet.



C F KELL & SON LITH

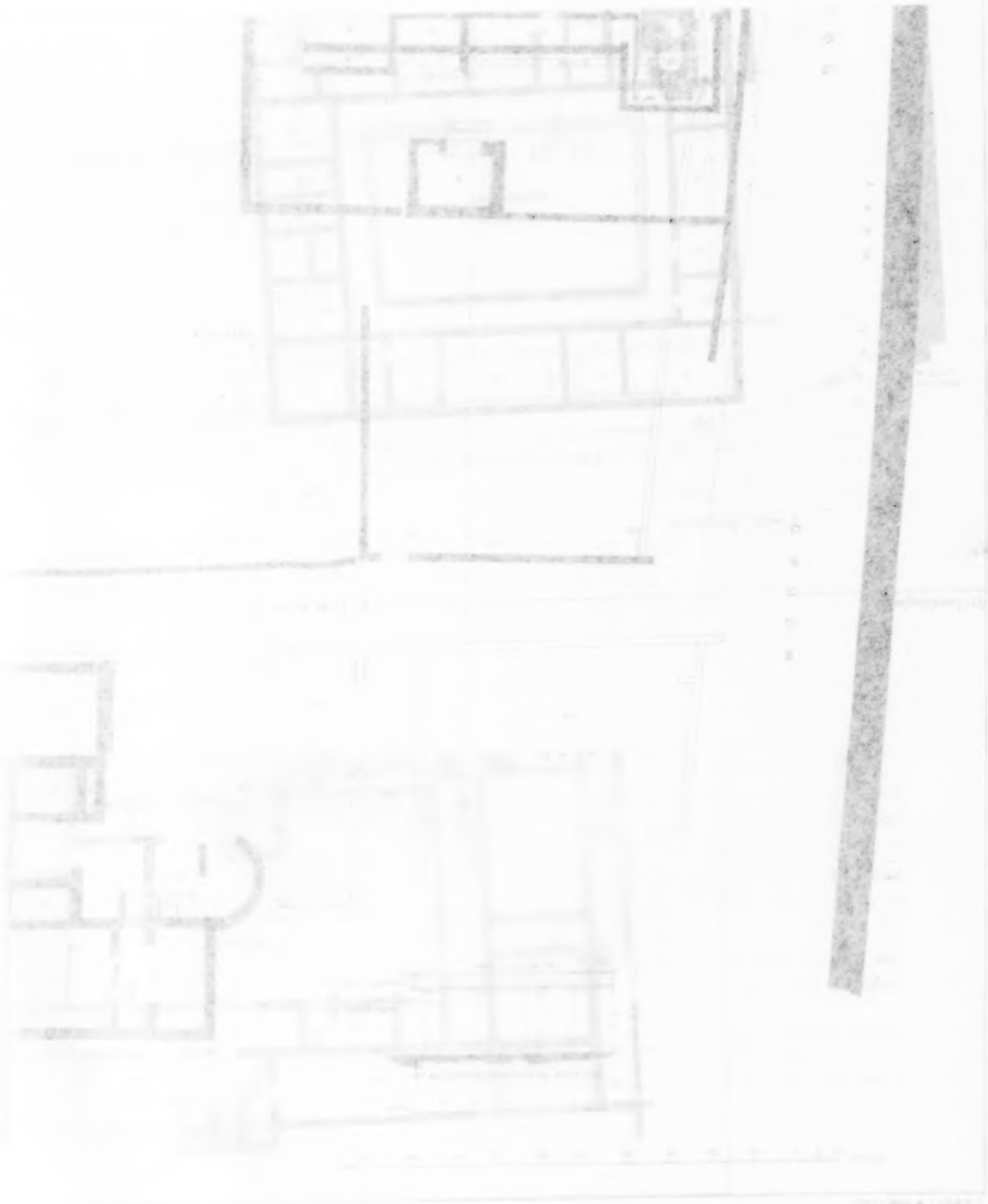

From Newport
MAIN
ROMAN
COURT
HOUSE VII
STREET
YARD
SECTION OF HYPOCAUST ROOM 14
CERRELL & SON LITH

HOUSES Nos VII AND VIII



HOUSE No II.

C.—PLANS OF HOUSES II VII AND VIII



pavement. Room 4 has a mortar floor with stones bedded in it in the eastern half, and a gravel floor in the western half. In the centre on the south side is a small piece of tessellated pavement with old red sandstone *tesseræ*, which must have originally extended over the whole room, while on the north there is a door-step into Room 5. Room 3 has a gravel floor, which is clearly seen at the south-west angle, but at the north-west angle has entirely gone.[a]

The west corridor of this wing (No. 1) has a tessellated pavement of coarse old red sandstone *tesseræ*. This is actually preserved for only about half its length, but its cement bedding is traceable as far as the north wall of Room 3. Here it disappears, and no floor is traceable, except that a heap of loose *tesseræ* was found in its south-west angle. Probably there were steps of some kind, perhaps of wood, forming a means of descent to the south range of rooms in the south wing, which lie at a much lower level, but of such steps there is no trace. The original slope of the ground is indicated by the fact that near the north end the foundations begin 2 feet 4 inches, at the south end 4 feet 6 inches (fig. 1), below the set-off which carried the usual quarter round moulding. The existence of white plaster *in situ* on its west wall close to Room 36 is noticeable as being a relic of the decoration of the exterior of the house; it is obvious that when so much care was bestowed on the interior the outer walls cannot have been left rough and unmasked.[b]

The west corridor, on reaching the north-west angle of Room 5, turns to the west and runs along the south side of the north wing of the house. At the angle Room 11 opens out of it eastward, and served as a sort of lobby. It had a pavement of sandstone *tesseræ*. Out of this open Rooms 8 and 10, the latter serving as means of communication with Rooms 9 and 12. The gap on the north side of Room 10, if it is a doorway at all, which is doubtful, communicates directly with the street which runs along the north side of this house. Rooms 13 and 15 open directly into the corridor, while Room 14, which lies between them, has an entrance into Room 15 by a step descending 10 inches from a flagged threshold flush with its tessellated pavement. Room 16 had probably an entrance into Room 15, and possibly into the corridor (2). Room 17 had possibly also a narrow doorway into Room 18.

The east end of the north corridor (2) has a tessellated pavement. The border is of sandstone *tesseræ*, then comes a band of white, broader at the ends than at the

[a] Here were discovered a fine pair of millstones and also the capital of a small column, with part of the shaft. The fragment was 9 inches in height, the shaft being 7 inches in diameter.

[b] Compare *Archæologia*, lii. 745.

sides, with a key pattern in black at the ends. In the centre is a panel 4 feet wide and 10 feet long, with scroll pattern in red, white, and black. The *tesseræ* are rather large, and the work is coarse. Further west are traces of a similar pavement, much damaged, but sufficient to show that the west half of the corridor was

Fig. 1. House No. 2, Room 1. Masonry of east wall of corridor.

decorated in the same way. The pavement has been much destroyed, owing to its nearness to the surface, it being only 3 or 4 inches below the grass in places, and to the laying of a water pipe here a few years ago.

The range of rooms to the north of the corridor, forming with it the north wing of the house, is remarkably fine and well preserved. The walls exist up to a height of 2 feet or 2 feet 6 inches, within 6 inches of the grass level, and the plaster with which they were covered still remains in position. As a rule we have only the lowest portion below the dado; it is white, generally splashed with drops of colour (black or red) from the brush. The floors of these rooms lie about on a level with the floor of the corridor.

Room 9 has a good floor of gravel concrete: the usual quarter round moulding at the foot of the walls has perished, but the projecting stone footing over which it was moulded is still traceable. In the centre of the west side was found a heap of small *tesseræ*, but no traces of any *in situ* could be detected, nor were any found elsewhere in the room.[a] There is a break in the north wall, but as the plaster goes right along the wall below it, it is probable that what looks like a gravelled sill is merely a mortar course to keep the wall dry. A similar thing is seen in the wall of No. 10 (where, however, part of the opening was probably a doorway, though not all, as is shown by the quarter round moulding, which is still preserved, though the wall has perished).

Rooms 10 and 12 have floors and wall plaster similar to those of Room 9. The gravel concrete floor[b] of Room 12 was particularly noticeable for its strength when excavations were made under it to find the walls of the earlier building, and with the exception of a small hole in the centre, is perfectly preserved. The quarter round moulding at the foot of the walls is very neat and small, 3 inches over all, 2 inches high.

Room 13 has entirely lost any floor it may have had; it was probably used to contain the fuel for the hypocaust 14, the stoke-hole of which opens in its west wall. This hypocaust has stone *pilæ* (fig. 2);[c] there are ten rows of them from north to south and seven from east to west, averaging 1 foot 9 inches in height and measuring as a rule 11 inches north to south, by 8 inches east to west, placed at intervals of 1 foot 3 inches, except near the side walls, where they are arranged less regularly. Every one of the *pilæ* was preserved *in situ*. The flue tiles which carried the hot air up the walls are also traceable, and the floor is almost perfect;

[a] Part of a small column, the capital and a portion of the shaft with the astragal in one piece, was also discovered in Room 8 (total height 1 foot 1 inch, diameter of column 8 inches), and a well preserved bronze spoon.

[b] 4 inches thick with a layer of rough stones 6 inches to 8 inches in thickness below it.

[c] The *pilæ* rested upon a floor of stone *tesseræ*, belonging to the earlier building, of which more will be said later on.

it consists of slabs of sandstone, about 2 inches in thickness. In some parts the floor is only one slab thick, with about 7 inches of mortar upon it (see section Plate IX.); in others two are laid one upon another, producing a total thickness of 5 inches, including the mortar between them.[a] At the north end an extra layer of cement between the slabs increased the total thickness to 7 inches.[b] Upon these slabs was laid a mosaic pavement, with a border of sandstone *tessera*, within which is a complicated geometrical design in red, white, and black; unfortunately

Fig. 2.—Hypocaust in House No. 2, Room 14.

the pavement is much damaged, though enough remains for the partial restoration of the design.

The next room westwards (No. 15) is entered from No. 14 by a step, still pre-

[a] Between these slabs and the *pilæ* are small irregular pieces of sandstone. In some cases where a *pila* is too short, there are two or three such pieces on top of it to make up the necessary height.

[b] A portion of the hypocaust has been removed to the local museum at Caerwent, where it has been reconstructed.

served *in situ*, near the south end of the east wall, and from the corridor (No. 2) by a step near the east end of the south wall. It has no hypocaust under it, but had a tessellated pavement, similar in character to that of No. 14, but in rather better preservation. Both are of a much finer quality than that of the corridor.[a] The border is of sandstone *tesseræ*, and by no means of the same width all round the room.

The next room (No. 16) had a good gravel concrete floor; that of the next (No. 17) has perished. The plaster on the east wall of No. 17 was discovered *in situ*, but soon fell away, revealing neat pointing on the mortar joints between the blocks. To the north of it, and possibly connected with it by a narrow doorway, is a small room (No. 18), the white dado of which is preserved to some considerable height.

Turning now to the remains of the earlier building which lie under this wing, we find that the floors lie as a rule at a depth of 1 foot 6 inches below the upper floor level. The pavements are of plain sandstone *tesseræ*, but well laid; the wall plaster, where preserved *in situ*, is very fine, and the fragments found, which belong to the upper portion of the walls, are extremely good in colouring. The plaster of the rooms at the upper level in this wing is, on the other hand, not remarkably good. A large quantity of fragments, the greater part of which belong to the walls of the earlier building, have been collected and placed in the local museum. A detailed account of them is at present impossible, but it is hoped that the subject may be fully dealt with later on, when further discoveries have added to our knowledge.

It is probable, though not certain, that before this wing was reconstructed, there was another corridor on its north side, as well as that on the south. It seems likely that in the reconstruction the first of these was suppressed, the rooms widened slightly,[b] and, with the south corridor, pushed a few feet further north, while the street to the north of the house was also widened by about 4 feet on the south side, so that its pavement is found above the foundations of the north wall of the earlier house, the later road being 1 foot 10 inches higher than the earlier one. This was certainly the case just north of Room 18, and the fact that we have an earlier north wall just west of it (which we cannot trace further eastward owing to its passing out of the field now under excavation) may point to the truth of this supposition. At this point the upper road had

[a] Both these pavements, as well as that found at the earlier level in Room 16, have been removed to the Cardiff Museum, where they are now exhibited.

[b] From 18 feet to 19 feet 6 inches.

rougher and larger stones than the lower, which was paved with pebbles. The space between is packed very hard with a conglomerate of pebbles, sand, and pieces of limestone. Here was found a thin plaque of bronze, with a female head in relief, probably the back of a hand mirror (fig. 3). Further exploration will probably throw more light on the interesting subject of the development of the street system of the city.

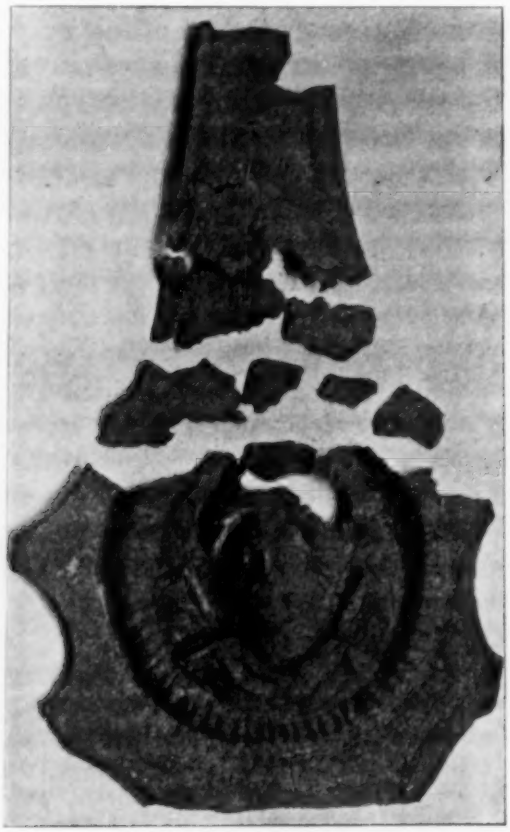


Fig. 3. Bronze plaque found in House No. 2. ½ linear.

The first traces of the earlier building appear under the north end of the east corridor (7). Here we have, between the foundations of the two walls of the corridor, the external wall of the lower house; on its west side we see an angle with plaster on it, and the traces of a partition wall (now broken away) going west and falling into line with the north wall of Room 8.

The wall crossing the corridor (6, 7) just south of this earlier wall is faced only on the north side, and probably served as a retaining wall, the thicker portion in the centre being a buttress. At the north end of the corridor (7), close to the north-east angle of Room 9, where the stepping off of the foundation is worth notice, there is an area enclosed by a thin wall, faced only on the north side, and the north wall of the house, with a pebble floor 4 feet below modern ground level, and traces of burning, as if there had been a furnace of some sort here; or perhaps merely an ashpit, left open when the later house was constructed and the rest of the space filled up.

The plaster belonging to the wall decoration of this earlier house at this point is extremely fine and vivid in colour. The scheme seems to have been a wall space divided by horizontal bands representing columns, $1\frac{1}{4}$ inch wide, with several different shades boldly combined of mauve, green, etc.

The next place where the walls of this earlier house are traceable is under Room 12. The east wall of this room has a treble footing, so that the foundations of the earlier and later walls may coincide here. Slightly to the east of the foundations of the west wall and parallel to it there is a wall, the ends of which are cut off short where the foundations of the north and south walls are sunk. There is still good white plaster *in situ* on the east side of this wall. From the space under the later floor of this room came much wall plaster of the earlier house, pottery, some glass, small bronze objects, and fragments of roof tiles. Rubbish, therefore, was obviously thrown in to fill up the space when the floor of the upper room was laid; it is not likely that the hole in this floor was made in order that the space might serve as a rubbish pit.* To the south of this, under the north end of the Corridor 1, a wall was found a little below the later tessellated pavement. This wall ran east and west across the line of the corridor. On the south side of it there was *in situ* some white plaster; and much bright yellow plaster with green leaf decorations upon it was found here. A little further south a hole was made in the tessellated pavement, resulting in the discovery of plaster closely resembling that found in the room under Room 15. Similar plaster was found at the south end of the Corridor 1.

The west wall of Room 13 coincides with that of the earlier room, which was slightly smaller; we can trace its north and south walls going eastwards as far as the wall underlying Room 12. Its floor was of good gravel concrete and it had a

* The floor of the earlier room was of gravel concrete, 3 feet 6 inches below that of the later room.

doorway at the west end of its south wall. The *pilæ* of the hypocaust of Room 14 rest upon the stone tessellated pavement of the next room westward, a little more of which, with the west and north walls, can be seen at the east side of Room 15, where the upper tessellated pavement has entirely perished; after the tessellated pavement of Room 15 had been taken up the north and west walls of the next room westward of the earlier building became visible. The plaster is *in situ* upon these earlier walls; it is of good quality, with a well-marked quarter round moulding at the foot of the wall. That on the west wall of the room under Rooms 14 and 15 is white, with green splotches from the brush sprinkled over it; near the south-east angle of Room 15 there is a curved niche, in which a broad red band may be seen above the white. The fallen plaster from the higher part of the walls is exactly similar to that found under the tessellated pavement of the west corridor of the east wing (No. 1). Some of it is painted in imitation of Taenarian marble (*rosso antico*) which is red with white streaks in it. Much fine plaster came from under the gravel concrete floor of Room 16, lying between this and the tessellated pavement of the earlier room.* It is very vivid in colour, and the tints are so varied as to defy description. The tessellated pavement has a fine decorative pattern; the *tesseræ* are rather large, but the whole effect is good. Outside is a leaf pattern in black, then a guilloche in white, black, red, yellow, and purple, within which come geometric designs. The border is of brick *tesseræ*. The north wall of the lower room has been broken down so that the concrete floor of Room 16 might be laid on it, but the west wall of Room 16 coincides with that of the lower room and retains no less than three coats of plaster, all belonging to the earlier period, apparently plain white, but much discoloured. The next room to the west (No. 17) shows traces of three different periods of construction. The outermost west wall belongs to the earliest and latest of these, while an intermediate period is represented by the wall a little to the east of them. The gravel concrete floor of this room belongs to the earliest period, as is clear from the level at which it lies. There is also a wall under Room 18 parallel to and a little west of its east wall.

The corridor which lay to the south of this range of rooms was paved with *tesseræ* of sandstone, and its walls had a dado of yellow plaster. Its north wall has been discovered under the floor of the Corridor No. 2, and the turn of the wall where there was a doorway from it into the room under Room 14 is clearly marked. From it project to the south three small rectangular spaces, the central

* This lies about 1 foot 6 inches below the surface of the gravel floor, which is 4 inches thick.

one of which (35) is paved with *tesseræ*,[a] while of the other two, Room 34 was gravelled (perhaps once tessellated)[b] and Room 36 was pitched with stones. Their level shows that they form part of the earlier building, to which also belongs the wall connecting Rooms 35 and 36, which is the south wall of the corridor. The line of the south wall of Room 36 was also prolonged under the Corridor No. 1.

How much, if any, of the south and west portions of this house may have belonged to the first house, and from it have been incorporated in the second, is doubtful. We have not found in either of them any traces of foundations at a lower level; but the fact that the chief rooms of the south wing are some 8 feet lower than those of the rest of the house may point to this, at any rate, having formed part of the earlier construction, in which case it seems to have been incorporated in the later house without alteration.

The north wing of the house is prolonged westwards by a range of rooms (Nos. 19-28) which do not call for much remark, as the walls have been destroyed in several cases to the foundation level and sometimes entirely. The floors have also perished absolutely.[c]

No. 24 was apparently a large yard or garden, as no cross walls could be found. Its west wall is of later origin than the mound, which was found between the city wall and House No. 7, and dates from a time when the mound was destroyed and the ground levelled up to the city wall, for in following the inner mound slope downwards this wall had to be cut away, and the mound was discovered continuing below it and east of it. The west wall of this yard (No. 24) was once prolonged further, but is broken off irregularly on a sudden, just where its foundation cuts into the crown of the mound.

We now turn to the west wing of the house, the rooms of which are on the same level as those in the north wing. The floors have all perished, owing to the shallowness of the soil at this point, and this block is therefore comparatively uninteresting. It is, however, noticeable for the extreme solidity of its masonry.[d]

[a] This pavement, from its level, belongs to the earlier house, but the space itself was provided with new outer walls on its incorporation into the later house, while those of the other two (34 and 36) apparently remained as they were.

[b] On the east side of the east wall of 34, the lower portion of a pot 11 inches in diameter of ordinary rough black ware was found *in situ*, embedded in the ground; inside it were pieces of a smaller pot of finer ware, glazed with diagonal hatching. Why it was put there is not apparent.

[c] It is curious that the cross wall running east and west which bisects all the north and south spaces is absent in Room 22.

[d] The south wall of Room 29 descends no less than 10 feet 2½ inches before it reaches its offset.

On the east side of it there is a corridor, at first 19 feet wide (No. 33), but further south divided longitudinally into two (39, 40). At the south end of this, on the west side, there is an extremely fine channelled hypocaust (38). The hot air was conveyed under the floor in walled and cemented flues, arranged in a curiously irregular manner. How the floor was supported over the large spaces where there were no flues is doubtful; probably these spaces were filled with earth or rubble. The tessellated floor had entirely perished, but a few specimens of wall plaster were found and fragments of scored flue tiles, slightly curved. The furnace of this hypocaust was to the west of it (No. 37) there being two channels from it into the hypocaust. Tiled flues conducted the hot air hence to Rooms 30 and 29.[a] The apsidal termination of the latter room is noteworthy, though not by any means unique. A few loose *tesseræ* were all that remained of its pavement. Behind it is a small paved yard (27) apparently surrounded by a low wall, the rain water from which was carried off to the south by two open drains, 3 inches in width.[b]

We now enter upon the examination of the south wing, which seems to have been the most important, and probably contained the main entrance. It consists of a corridor on the north side, apparently subdivided by cross walls after its original construction, which is below the level of the west wing; while on the south is a long range of rooms, which lie at a level lower than that of the corridor, and above that of the north rooms of House 3.

The corridor (No. 41) does not call for much remark.[c] It starts from the south end of the western of the two corridors of the west wing, and beyond the first cross wall (on the east side of which plaster remains *in situ*) has on the north an exit to the central courtyard, flanked by short walls, with flat slabs between them (that at the north end is alone preserved)[d] resting on a gravel foundation.

the masonry, though rather rough, being very solid and strong; at the offset is a longitudinal slit 4½ inches high, probably due to the giving of the foundations, which descend 1 foot 7 inches further down. The great depth to which the wall was sunk was merely due to a desire for strength in building in what must in Roman times have been loose ground. It appeared from the condition of the soil that quite a narrow trench had been dug when the wall was built, only sufficiently wide to give room for its construction.

[a] In the former room many clinkers were found.

[b] Some clinkers and a quern stone were found here. To the west of it again a wall runs south. The walls connecting it with the rest of the building (except on the north) have, however, perished. In the angle it makes with the first cross wall to north, a black pot (ordinary type) was found *in situ*, mortared against the wall. Pots similarly deposited have been found in several houses at Silchester.

[c] Apparently it had a gravel floor, but the floors here have almost entirely perished.

[d] At this point the *tesseræ* of a mosaic floor were found, but nothing but the bedding on which it rested remained *in situ*.

Some way further on it is interrupted by another cross wall, built upon the edge of a well.[a] At 17 feet 4 inches from the top of the wall to the south of the well human bones began to appear; the scanty remains of two or more skeletons of adult males, according to Professor Sidney Reynolds.[b] Some ox bones were also found, and several bones of small birds. Below this common black and red pottery was discovered, and on the hard clay bottom (reached at a depth of 20 feet 3 inches) were pieces of a flue tile and a brick, with some blackish sediment. The well was apparently disused at the time the skeletons were thrown in, and was filled up in Roman times with large rough loose stones.[c] The well was reached from the central court by a doorway to the north, the existence of which may indicate that the well was for a time still in use after the house was built; later on this door appears to have been blocked with concrete. Just to the south of this concrete is a little stone flagging. To the east of the well the walls have been to a large extent removed, and the plan is in consequence not easy to understand. There seems to have been another room to the north of No. 50, which has almost entirely disappeared. After another cross wall we reach a small chamber (51), to the north of which is an isolated fragment of wall with a gutterstone beside it.

Turning now to the rooms on the south of the corridor, we find that at the south-west angle the walls have been removed to the level of the foundations. Here we note again a dry course of gravel concrete.

A short distance from the south-west angle was a shallow pit, which proved to contain nothing but a large amount of decorative wall plaster.[d] A precisely similar deposit was found some way further east, 9 feet to the south of the baths (46-48).

[a] This well, which was lined with stonework, was much ruined at the top, but preserved from a point 6 feet 7½ inches below the top of the wall on the south side for a depth of 6 feet 6 inches; after this it had fallen in. The stonework was 1 foot 8 inches to 2 feet 2 inches in thickness, and gave a diameter of about 2 feet 4 inches to the well. It was found necessary to remove all the stonework in order to proceed with the exploration of the well, as it was in a dangerous condition.

[b] See *Archæologia*, lvii. 311.

[c] Both the wall to the west and the wall to the south are built on a massive foundation of boulders mortared together; the latter wall being carried over this rough foundation by an arch.

[d] Much of it belonged to a scheme of wall decoration in which panels imitating veneering slabs of marble (the varieties known as *giallo antico* or Numidian, a yellow marble with red veining, and *bigio*, a grey marble) were separated by vertical bands 1¾ inch wide imitating columns, alternately red and grey. The rest was of the most various colours and designs, defying all attempts at restoration.

The south-west room (42) of this house, in which much charred wood was found, leads directly into the next (43) by a doorway, the stone sill of which is still *in situ*. From this room, by another doorway paved with old roof tiles,[a] and not quite opposite to that in the west wall, we enter a large room (44), which has been much altered in later times. Originally it probably formed the main entrance to the house on this side, as on the south side at the east end it has a line of five large stone blocks, each 1 foot 9 inches to 2 feet in length, giving a total length of 9 feet 7 inches, and 3 feet in width, including a 6-inch bevel. Other similar stones probably lay further to the west, but the whole of the south wall as far as the south-west angle has been removed by lime-burners or quarrymen. Close to these blocks on the north-east lie one or two others *in situ*, as if forming part of a massive platform, and another has been left on top of them by those who removed the rest. The interior of the chamber has been entirely altered in character. Just to the north of these stones there is a bank of hard yellow sandy material, to the north of which again is a curving wall, to both sides of which ash and charcoal were found adhering, and north of it again a pit, 4 feet in depth from the floor level, and 6 feet 6 inches from the top of the semicircular wall, in which nothing was found but loose stones. Almost the whole of the north half of the room was occupied by a series of three pits, precisely similar, all filled with loose stones, which were very damp and moist, as the bottom, which lay about 6 feet down, was hard clay. To the east of the pit is a rough block of stone, looking rather like the base of a pilaster, and projecting 6 inches into the line of the north wall, the foundation of which has slipped considerably. In this room some flue tiles were found with small round holes; these holes were filled by a nipple of plaster projecting from the flat surface of the wall lining, and thus the tile was supported. Along the east wall of the room runs a "box" drain, formed by rough slabs of stone; this runs past the large bevelled stones, its floor being on a level with the top of them, and along the west wall of the cold bath (No. 46) the waste water from which fell into it, to its south-west angle, where it curves away and runs south-west for a short distance, after which it apparently stops. There are no traces of top and bottom slabs in the last part of the drain, and it is quite possible that it was merely an open channel.

To the east of Room 44 is an interesting, though small, series of baths, situated to the south of a large room (45) from which they are entered. On the west is the cold bath (46), measuring 6 feet by 2 feet 11 inches, with its *opus*

[a] Two of these still show the holes for the nails by which they were fixed.

signinum lining still in good preservation. Next to it are two more baths (47, 48), on the south side of the latter of which the lead pipe for the waste water is still *in situ*, passing through the wall; the south end has been nipped off. Here again were fragments of wall plaster *in situ* on the exterior wall, from which it is just possible, though not very likely, as they are too brilliantly painted and well preserved, that the fallen pieces found to the south may have come. Both of these baths were heated by hypocausts. The floors have entirely perished. The construction of the hypocausts is interesting. The tiles which carried the *pilæ* are laid on a bed of mortar 2 inches thick, or else upon slabs of stone 1 foot 2 inches to 1 foot 4 inches square, which are laid in this mortar bed; this in turn rests upon large slabs of sandstone 2½ inches in thickness.[a] Beneath these slabs are blocks of stone resting on a clay bottom, and measuring 4½ inches in thickness and about 10 inches square, between which and the slabs is a layer of mortar 1 inch to 1½ inch in thickness. The spaces under these large slabs were intended to keep the floor dry. Several flue tiles of the usual type used for carrying the hot air up the walls, and the iron T-bolts for fixing them, were also found.

The furnace by which this series of hypocausts was heated must have been to the north of the doorway in the east wall. The solid platform of the threshold of this doorway projects 2 feet 3 inches into Room 45, and the flue must have been carried immediately to the west of it, as the tiles at its west edge show. The west wall of the flue has, however, been removed, and a furnace (fig. 4) has been placed in the centre of the east side of the room. This must have taken place at a period when the hypocausts were already destroyed, as some of the *pilæ* are actually beneath the floor of the furnace. The furnace is composed of large blocks of stone, one of which is a gutter stone filched from some other building, and is similar to the east furnace (c) in House No. 1[b] (fig. 5). For what process of manufacture it was used is uncertain. Many ox and pig bones were discovered in the room. A drain carried from the south-west angle of Room 45 under the cold bath No. 46 is puzzling, and its object uncertain, but it appears to belong to the original construction and not

[a] One which we lifted measured 3 feet 2 inches by 2 feet 8 inches; another occupies the entire interior of the hot bath (No. 48), measuring 5 feet 4 inches by 3 feet 3 inches.

[b] The internal height of this furnace at the south end (the north has perished) is 2 feet 6 inches on the east side and 2 feet 1 inch on the west (where the block supporting it rests on the west wall of Room 48 prolonged) and its internal width is 2 feet 3 inches. The top block at the south end measures 3 feet 11 inches long by 1 foot 6 inches wide by 11 inches thick. There is an outlet for the drainage in the south wall of Room 48, a hole about 4 inches square, but not in any other place, though we dug below the set-off of the south wall to search for it. See *Archæologia*, lvii. 299, for the furnace in House No. 1.

to be a later addition. The plaster with which the walls of this series of baths was decorated claims attention. The ground is white, with red and green lines; first a broad red border, then two thin green lines; then sometimes a red band; then a green line with what seems a rough representation of moss or leaves. Four large fragments pieced together show that at one point the border was arranged in the form of a dodecagon. The field was decorated with foliage roughly but cleverly drawn, not of the conventional type, but representing sprays of fern, etc.

Fig. 4. Furnace in House No. 2, Room 45.

Some of the plaster again had a large yellow circle upon the white ground, and some from its being on a curve had obviously served as the decoration of a niche.

The room (No. 49) to the east of this series of baths is interesting from its size, 49 feet in length by 15 feet 4 inches in width at the west end and 13 feet 6 inches at the east. The divergence from the right angle is rather the rule than the exception in the houses which we have examined at Caerwent, and has intro-

duced an additional element of difficulty in planning them. The plaster upon the walls is white, decorated with splotches of red paint from the brush, roughly arranged in upward curves. Above this is a red band 3 inches broad, above which there is a white field divided into panels by thin vertical lines of black and red. The fragments of plaster from the upper part of the walls do not fall in with this scheme of decoration, which must therefore have been altered a few

Fig. 5. Furnace (*c*) in House No. 1.

feet higher up. The field seems to have been dull yellow, with a thin white line round it.

The west wall is completely preserved, with the doorway leading into Room 45, which is neatly recessed, but all the other walls have been more or less destroyed. No traces of any but a gravel floor were discovered. The difference of level between this room and the Corridor No. 1, which abuts on it on the north at the north-east angle, has already been noticed.

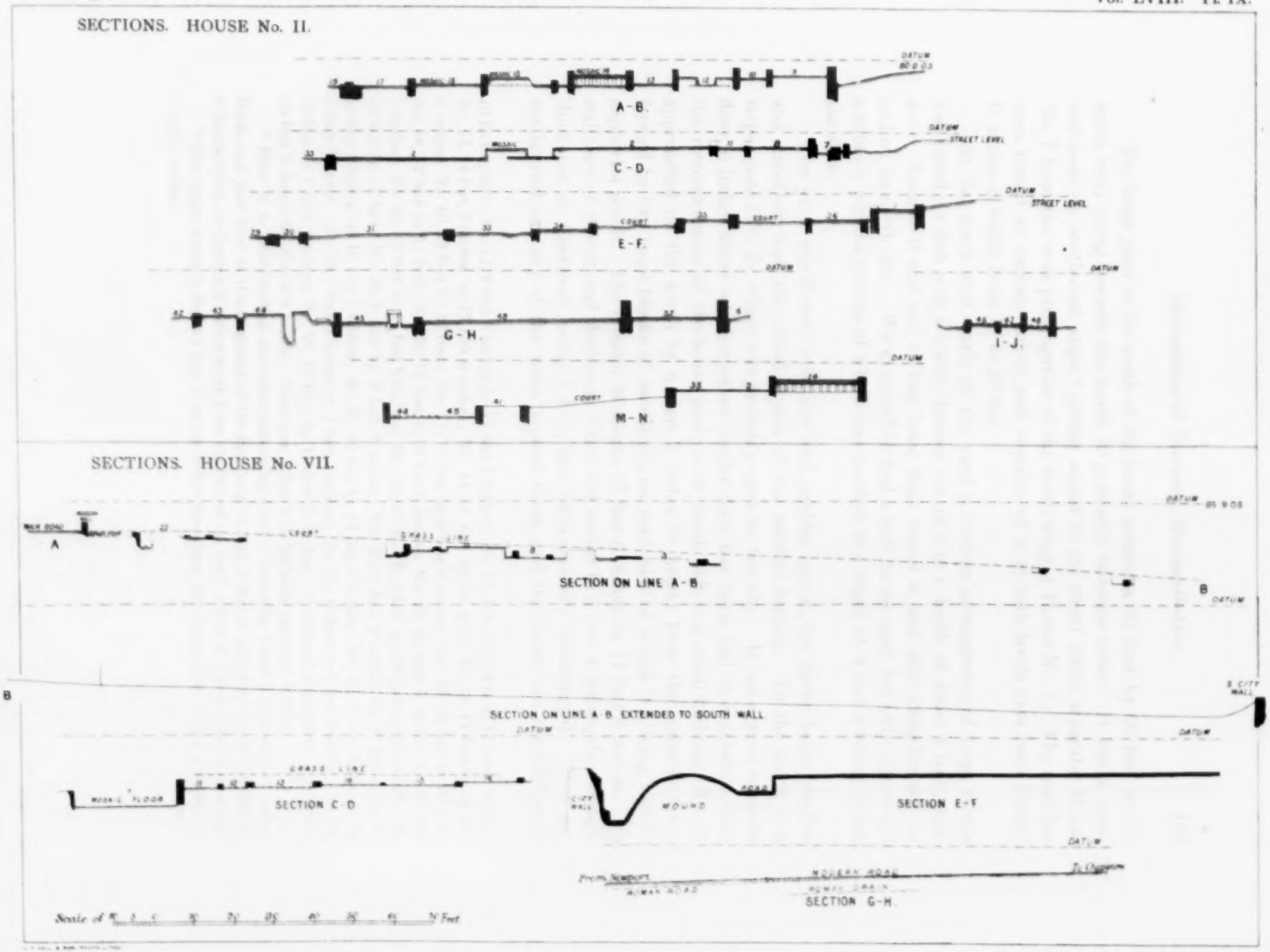
The series of rooms in this wing is closed by a fairly large room (52), at the same level as Room 49. No traces of either the wall decoration nor the flooring were discovered, and its use must remain uncertain.

House No. 7.

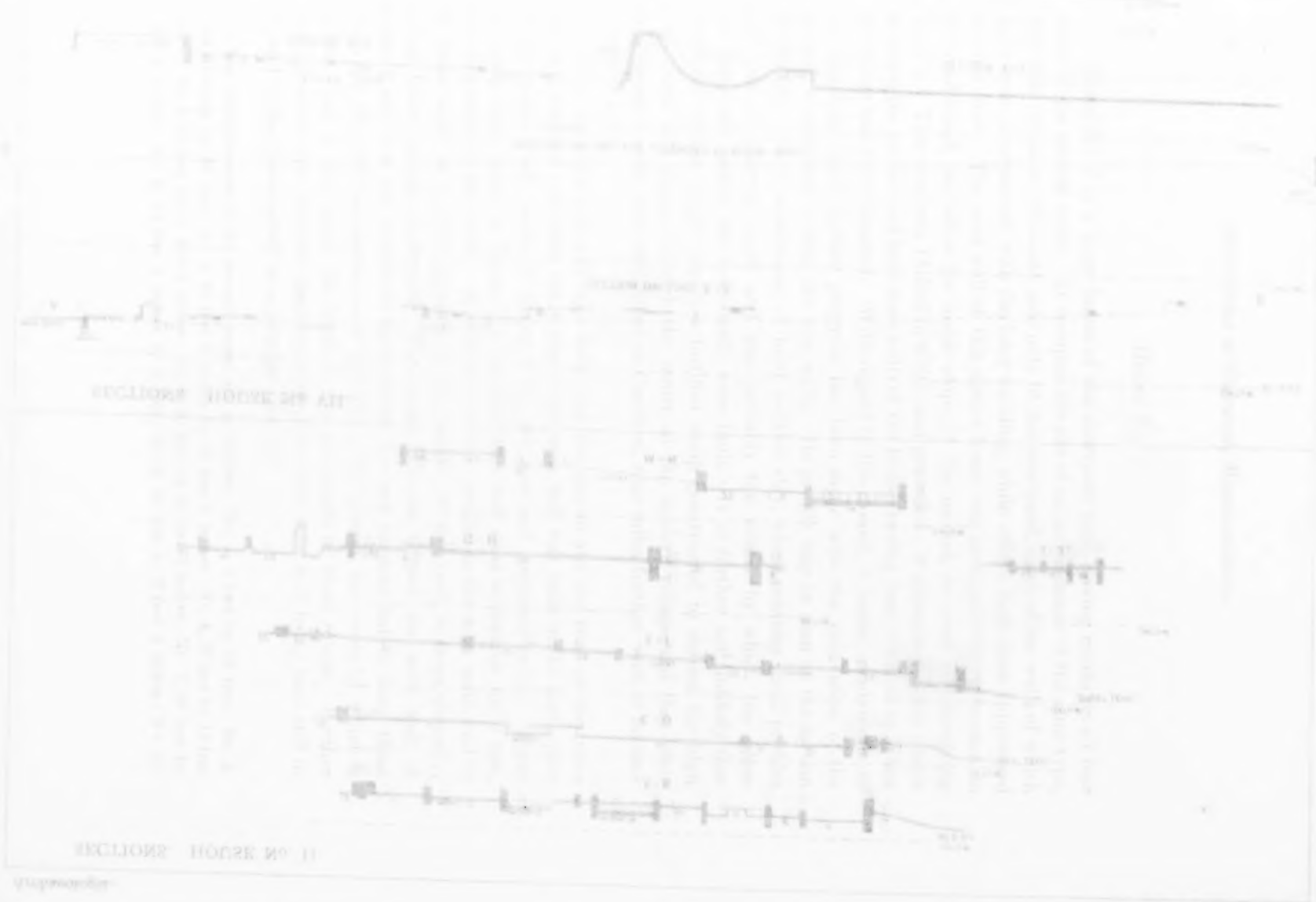
House No. 7 is a large house of the courtyard type, having rooms on all four sides of the central space. It occupies the site of an earlier house of the same type, but with rooms on the south side only of the courtyard, many of the walls of which have been incorporated with the later building, while others have been suppressed or built over. The west wall of this earlier house was arranged with reference to the road which ran below the inside slope of the mound, its outer wall bordering upon it. This road was 14 feet in width, and gravelled: it appears in many places between the earlier and later west walls of the house, having been covered up when the house was reconstructed. With regard to the mound, it seems unadvisable to say anything until further progress has been made with the excavation of the ground immediately within the city walls. Its profile may be seen on the section (Plate IX). It is constructed of hard reddish clay, which contains small pebbles and bits of charred wood, and was probably the means by which the place was defended before the town walls were built. It is further not unlikely that Caerwent was in origin simply a fortified camp constructed to defend the high road which still passes through the centre of the modern village, and that after the Second Legion was established at Caerleon, nine miles further west, it became a country town.

After the town wall had been built, and the mound and the road on the inner side of it covered over with soil, a new outer west wall was built in the north part of the house, while south of Room 6 the old west wall continued in use. From the north-west angle of Room 7 a roughly built wall runs westwards for 3 feet, and then turns to the south. It continues to run parallel to the west main wall of the house until, at a point opposite to the middle of the yard, it stops abruptly, having been entirely destroyed. The space between it and the west wall of Rooms 6 and 7 is too narrow to have served for any purpose but to keep these rooms dry after the accumulation of soil above the mound, the crown of which is no less than 4 feet above the level of the pavements of these rooms. Further south, however, the interval becomes wider, the older west wall being here still in use, and it may have served as a passage (No. 1).*

* The measurements of the several rooms are as follows: No. 1, 9 feet by 24 feet; No. 2, 91 feet 6 inches by 38 feet; No. 3, 16 feet 3 inches by 12 feet 6 inches; No. 4, 37 feet by 14 feet 6 inches; No. 5, 10 feet by 17 feet 3 inches; No. 6, 20 feet by 20 feet 3 inches; No. 7, 26 feet by 17 feet 6 inches; No. 8, 74 feet 3 inches by 6 feet; No. 9, 20 feet by 3 feet 3 inches; No. 10,



CAERWENT.—SECTIONS OF HOUSES II. AND VII.



The large yard to the south of the house measures 82 feet by 66 feet at the south end; going towards the north it gradually becomes wider. It has a doorway near its south-east angle[a] giving access to the street which separates House No. 7 from the west prolongation of the north wing of House No. 2. The road has been traced at various points, and remains of it at both levels have been found.[b] It varies in width from 18 to 20 feet.

At the south-west angle of the yard a curious arrangement of large stones was found; a slab with a water-channel cut in it to a depth of about 1 inch, with a step down to it and one or two loose flags round it, and with a smaller slab on end on its north side. We expected to find a well to the east, but only discovered a rubbish pit, the bottom of which was reached at a depth of 4 feet 8 inches below the slab.

The yard was floored with clay and pebbles mixed, the latter being smaller and smoother than the round stones of the natural bottom. To the north is a large space (No. 2), which was probably open to the sky. It has a good concrete floor, 6 inches above which another similar floor has been laid in connection with the reconstruction of the house, and on its south side is a small building (No. 3) approached on the north by a step 9 inches in height from the concrete floor, formed by two large blocks of sandstone, on each side of which is a wing wall to support a porch. The interior measures 17 feet 6 inches by 11 feet 6 inches. Its walls are of exceptional thickness, 2 feet 10½ inches to 3 feet 4 inches, the average thickness at Caerwent being 2 feet, and very carefully constructed. They are not bonded into any of the walls around them, and the latter are much thinner

10 feet square; No. 11, 8 feet 3 inches by 17 feet 6 inches; No. 12, 5 feet 3 inches by 17 feet 6 inches; No. 13, 14 feet 3 inches by 17 feet 6 inches; No. 14, 15 feet by 18 feet; No. 15, 17 feet by 16 feet 3 inches; No. 16, 13 feet by 16 feet; No. 17, 12 feet by 8 feet 9 inches; No. 18, 12 feet by 20 feet; No. 19, 12 feet by 11 feet; No. 20, 12 feet by 9 feet 6 inches; No. 21, 24 feet 9 inches by 16 feet 9 inches; No. 22, 12 feet by 16 feet 9 inches; No. 23, 27 feet 6 inches by 16 feet 9 inches; No. 24, 10 feet by 17 feet; No. 25, 7 feet by 6 feet 9 inches; No. 26, 6 feet 9 inches by 8 feet; No. 27, 15 feet 9 inches by 16 feet 9 inches; No. 28, 16 feet by 12 feet 3 inches; No. 29, 5 feet 6 inches by 9 feet 6 inches; No. 30, 8 feet 6 inches by 9 feet 4 inches; No. 31, 16 feet by 6 feet 9 inches; No. 32, 16 feet by 5 feet 9 inches; No. 33, 16 feet by 12 feet 3 inches. Courtyard (excluding corridors), 60 feet 9 inches by 36 feet 9 inches. Corridors, 5 feet 9 inches wide (average width).

[a] Here is a loose block of sandstone measuring 4 feet 5 inches by 1 foot 5 inches by 10 inches thick, and just west of it a fragment of the threshold *in situ*, 2 feet 6 inches by 1 foot 6 inches by 8 inches thick, projecting 3 inches south from the face of the wall, which is 1 foot 6 inches in width.

[b] The upper street is about 1 foot 5 inches below the grass, the lower from 3 feet 8 inches to 4 feet 2 inches.

and not so well built. Originally, therefore, the building may have stood by itself, and was perhaps a small temple or shrine, though nothing was found that gave a clue to its purpose. The floor was of gravel concrete; fragments of it 9 inches in thickness were found, but hardly any *in situ*. Below the floor level we found gravel and burnt material, including bones of deer and other animals, to a depth of about 2 feet below the threshold level.

To the east of No. 3 are two spaces (Nos. 4, 5) enclosed by irregular walls, the use of which is uncertain. No. 4 has a gravel floor 1 foot 4 inches below the modern ground level.

Further north again we enter upon the principal rooms of the house. At the west end of the line are two large rooms (Nos. 6, 7) measuring respectively 20 feet square and 26 feet by 17 feet. An opening 17 feet wide which was probably closed only by curtains, leads from one to the other.

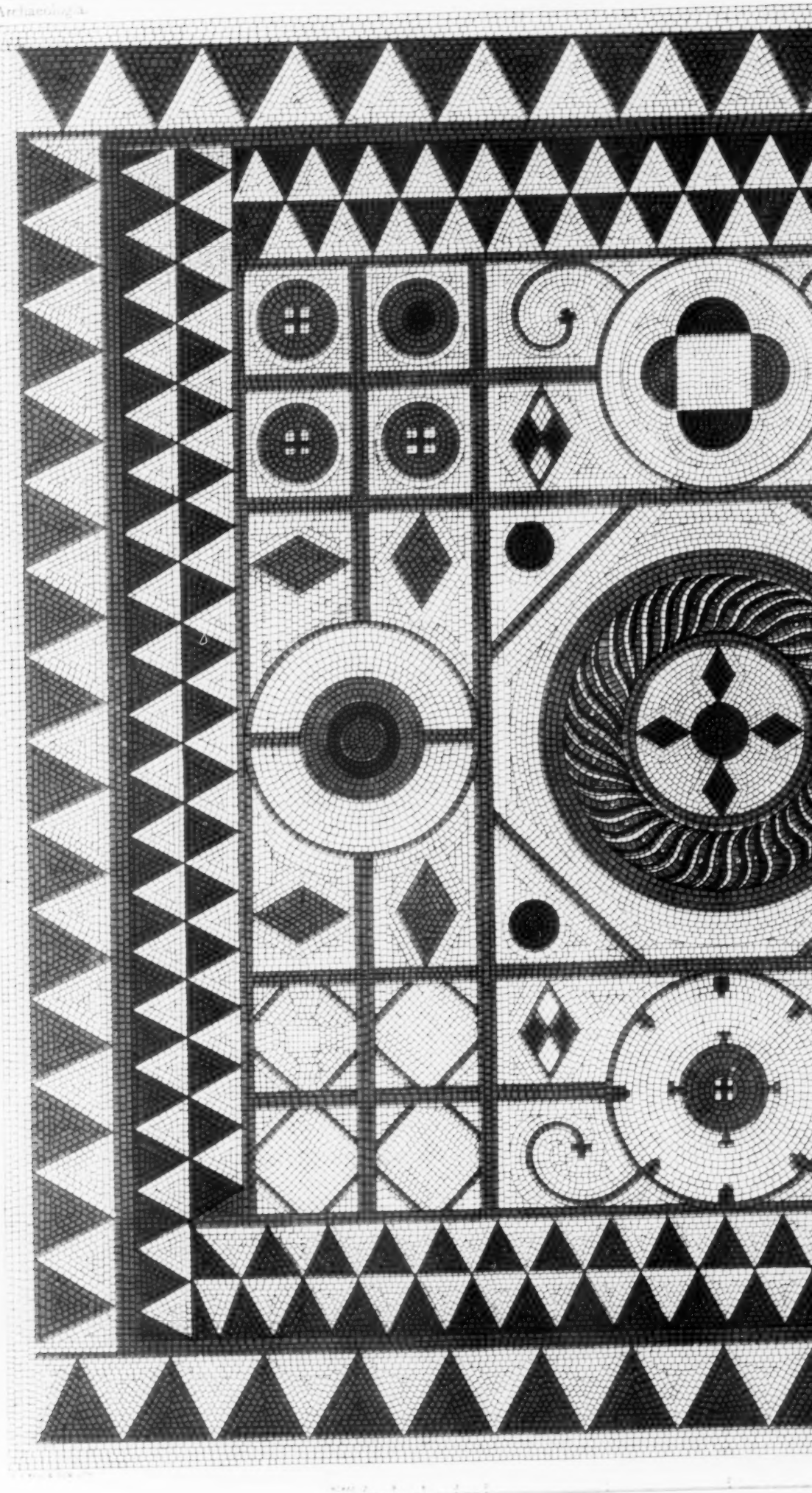
The only entrance to them from the rest of the house is by the corridor (8), which enters Room 6 on the east side. Both are paved with mosaics of intricate pattern, but bad execution. That in Room 6 is the better preserved of the two, and is also the more interesting (Plate X.). The central circle has unfortunately disappeared to a great extent, and what was represented in it we cannot tell. The four minor circles surrounding it contain figures of nude winged genii, each holding a torch in his right hand, and each differing slightly in position and in the details of the representation. Those in the south-east and north-east corners are perfect. In each corner of the pavement is a rectangle containing the head and shoulders of a figure representing one of the four Seasons. Winter, in the south-west angle, is the best preserved of the series, and wears a pointed hood which covers the ears. The figure in the south-east angle is entirely lost, but the remaining two are fairly well preserved. Both are female figures with garlands in their hair, but neither has any attribute which gives a clue to its identification.

In the centre of each side is a rectangular panel containing the figure of an animal. On the west we have a lion, on the south possibly a bear or boar, and on the north remains of two animals, the one either a boar or a bear, the other certainly a hare or rabbit. On the east only the head of the animal is preserved, but it seems to be that of a lion. Between each of these panels and the busts of the Seasons in each corner are two guilloche ornaments set in lozenges, while the spaces between the circles are filled in with geometrical designs.

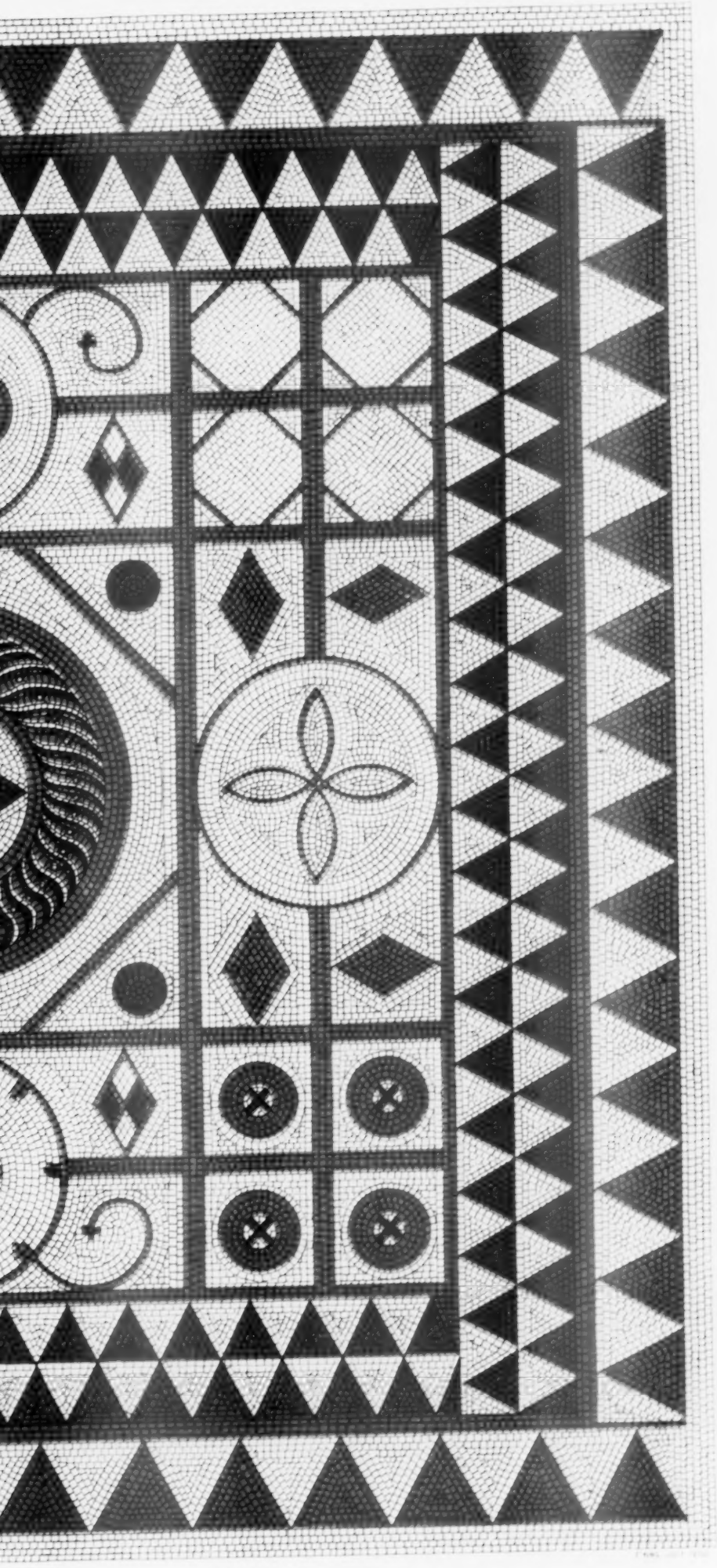
On the north is the entrance into Room 7, and here the edging of sandstone *tesseræ* is replaced by six lines of chequers in black and white which form the transition to the pavement of the next room. This is purely geometrical in

CAERWENT—MOSAIC PAVEMENT

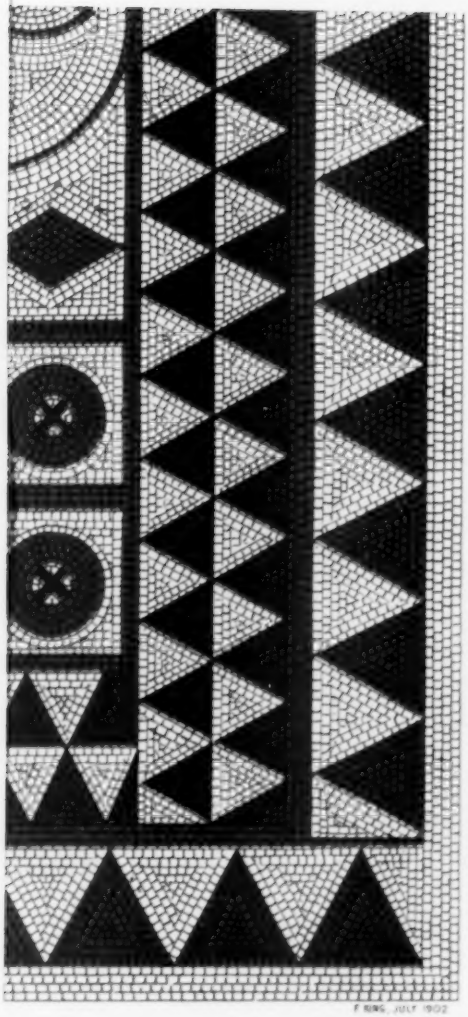
Centre Line



CAERWENT.—THE LOWER PAVEMENT.



ST. ROOM 7. HOUSE VII.



character, consisting very largely of chequers, and executed in black and white only, with a wide border of sandstone *tesseræ*. The centre pattern is 12 feet square, while the border is of irregular width. Considerable remains of an older pavement immediately below this are preserved. It is far better in execution; the margin consists of a line of black and two lines of red triangles on a white ground, while in the centre are circles with various designs within them.[a] (See Plate XI.) The border of sandstone *tesseræ* is wanting and seems to have been entirely removed for use in the upper pavement.

As in all the other Caerwent pavements, the whole of the *tesseræ* seem to have been made from stone found in the immediate neighbourhood. The white are of white lias; the black, or rather blue, are blue lias; the brown, yellow, and purple are of sandstone, derived from different layers of old red and coal measure sandstones, which differ considerably in colour. The red and pink are of brick, numerous *tesseræ* used for the lips, noses, tongues, etc. of the animals and the Seasons being made from Samian ware. A few *tesseræ*, rich in colour, red, green, deep yellow, etc. seem to have been made from hard pebbles from the bed of the stream, or possibly from the shore of the Bristol Channel, a few miles to the south of Caerwent. On the whole we may say that the colours of these pavements compare favourably with those found at Silchester and elsewhere in Britain, their special feature being the large quantity of sandstone *tesseræ* of various shades, used with especially good effect in the guilloche knots and borders.

The walls of both these rooms are preserved to a maximum height of 3 feet on the west and rather less on the other sides, and much of the wall plaster is preserved *in situ*. Full size tracings of this have been made. There seems to have been an attempt to represent architecture in perspective, in far away imitation of the later Pompeian styles of decoration; but the colouring is crude in the extreme and the intention of the artist by no means clear (Plate XII. fig. 2). Many fragments of the plaster from the upper part of the walls were also collected, especially in Room 7, where a piece about 6 inches by 1 foot was found lying on the pavement. It represents green foliage on a purple ground. The scheme of colour and design of the upper part of the walls has not yet been made out, but careful study may be able to produce further results.

We may now turn to consider what knowledge can be gained of the first

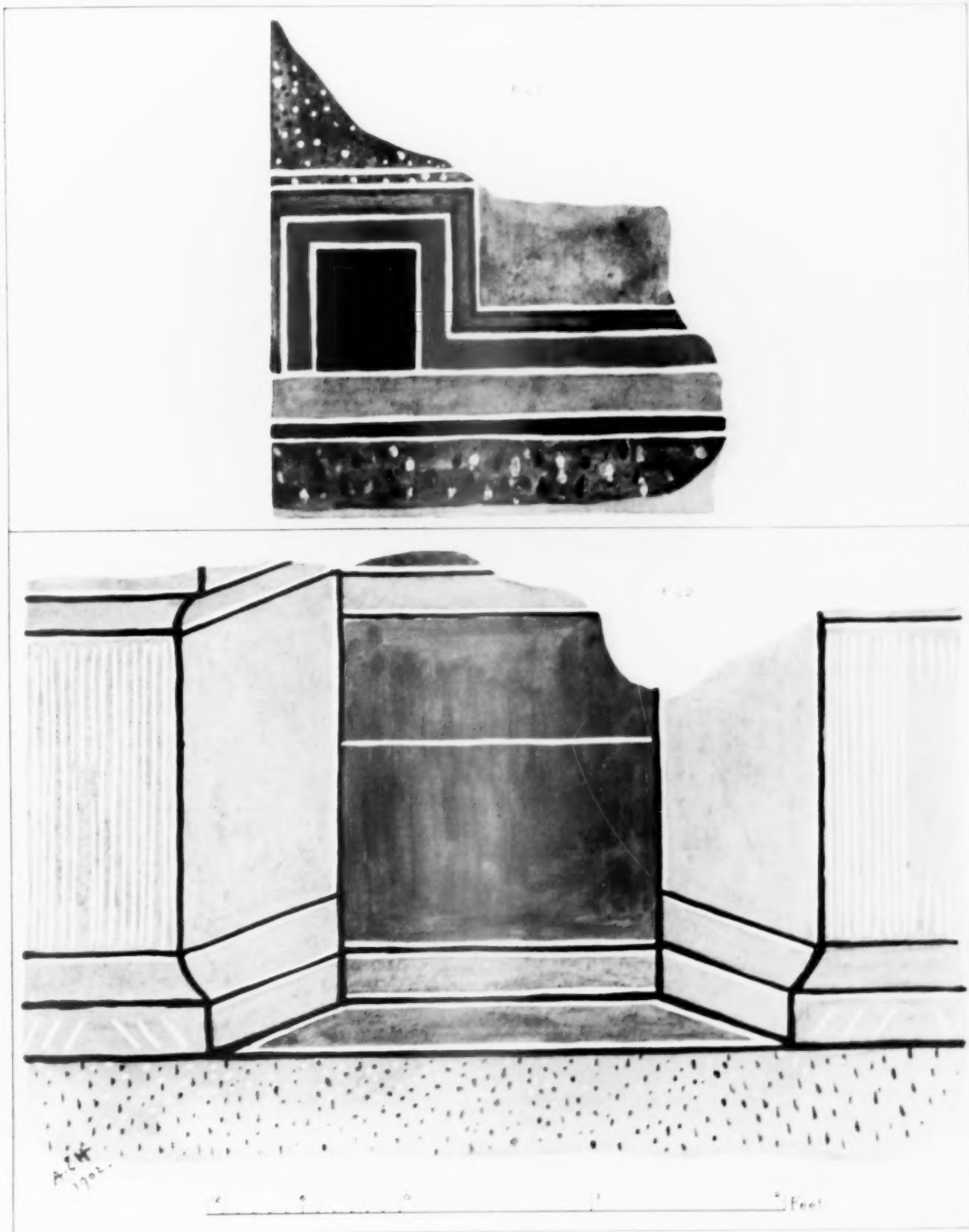
[a] This pavement, though parts of it had sunk, was almost perfect, so that the design could be recovered with certainty, and is therefore shown as complete on Plate XI. though some small portions were missing. All the three pavements have been removed to the Newport (Monmouth) Corporation Museum.

state of this portion of the house. The line of the older main west wall can still be traced. In Room 6 the pavement had sunk about 8 inches for a distance of 2 feet from the west wall, while beyond this it was at its proper level. A hole sunk in this depression revealed the west face of the old west wall, and this could also be traced under the floor of Room 7. Beyond this the floors of the rooms of the later house have perished to a great extent, and the older wall was followed through Rooms 17 to 20 right up to Room 21, where the north-west angle of the older house was discovered a little within that of the later house.

The removal of the mosaic pavements has enabled us to see clearly what was the arrangement of these rooms in the earlier house. (See separate plan, Plate VIII.) The south half of Room 6 formed part of the yard No. 2,[a] while the north half was a room at the western end of the corridor (No. 8). The south wall of this corridor was clearly traceable from the irregularities of the pavement in Room 6, and another portion of it was found just to the east, with a doorway in it leading out to the yard, the sill of which is still *in situ*. The corridor of the earlier house was slightly wider than that of the later, as the south wall lay a little further south, while the north wall is common to both periods.

The red plaster of the dado is still traceable on the walls of the earlier room under Room 6. In its north-west angle there is a small stone hearth, in which charred wood was found, while further to the east there is a paved floor of slabs of sandstone, from which a doorway (with plaster still preserved on the return on the east side) leads into Room 7 at the level of the lower mosaic pavement. Room 7 was, in the earlier house, about 5 feet narrower from east to west, but otherwise of the same dimensions, its walls (except the west wall) being common to both periods. The road mentioned above was discovered between its earlier and west walls, 6 feet 6 inches below the modern grass level: it is gravelled, and under it are pieces of limestone, clinkers, and burnt stuff for a depth of 1 foot. As far as the original north-west angle the north wall of Room 7 has in places three if not four different coats of plaster, one above the other, whereas further west and on the west wall, as on all the walls of Room 6, there is nowhere more than one coat. The careful removal of these upper coats has revealed remains of the earliest layer of plaster, showing the original north-east and north-west angles; the colouring is far finer and the drawing much better than in any of the later decorations (Plate XII. fig. 1). Traces, though somewhat scanty, of this earliest

[a] A fragment of a sandstone capital about 8 inches in diameter was found built into the later east wall of Room 6.



CAERWENT. PAINTINGS ON NORTH WALL OF HOUSE No. 7.

Fig. 1.—Earlier layer. Fig. 2.—Later layer.

Photographed by Mr. Henry W. Taylor, of Caerwent, 1902.

layer have also been found on the east walls of the room. It is to be noted that the dado has been carried about 6 inches below the level of the earlier pavement, no doubt as a precaution, the walls having been painted before the floor was laid.

In the later state of the house the only means of access to these two rooms was, as we have seen, by the corridor (No. 8), which entered Room 6 on the east side.[a] On the north of this corridor is a range of rooms which were probably lighted from the central courtyard, whereas Rooms 6 and 7 must have been lighted from the south and west or by means of a clerestory.

These rooms (11 to 16) were all entered from the corridor, either directly or indirectly, Room 12 serving as a passage to Rooms 11 and 13. Room 11 has two concrete floors, the one 7 inches above the other; at the south end of the room is a narrow wall parallel to the south wall, which was suppressed when the upper floor was laid. Between the two floors is much black burnt material. This may indicate that the first house was burnt down, or merely that at one time there was a hypocaust or fire here. Room 12 has a gravel floor flush with the thresholds of the doorways which lead into it. Room 13 has a concrete floor; the dado is white splashed with strawberry colour, and there are traces of another coat of plaster under it. Rooms 14 and 16 are hypocausts, the stokehole and wood-yard (Room 15) lies between them.

The north half of the floor under the hypocaust in Room 14 has subsided, and here the *pilæ* are fairly well preserved. They are formed of slabs of sandstone, which are occasionally replaced by tiles. They are irregular in size and arrangement, but average 10 inches square. The south half of the floor has to a greater extent retained its original level, and here the *pilæ* are gone completely, and their positions cannot be traced. Of the upper floor nothing is preserved. Beneath the lower floor are stones loosely packed so as to keep the floor dry. This hypocaust did not form part of the first house, for under the floor was found wall plaster which must have belonged to an earlier period. The pieces were of various colours, while the room above the hypocaust was decorated in red and white.

The sill of the flue between Rooms 14 and 15 is a slab of sandstone, the sides being of tiles; on the east side of the opening and south of it a narrow slab of sandstone 3 feet 3 inches long was found, serving as the beginning of the flue.

The Hypocaust No. 16, had *pilæ* of tiles 10 inches square, ten rows from north to south, and seven from east to west. The places where they were

[a] A small model in bronze of a four-legged stool, decorated with enamel, (a child's toy ?) was discovered here.

originally laid can still be seen; in later times there was a rearrangement made, the *pilæ* being put closer to the walls of the room, but the original number being retained. The flue opening is similar to that described above.

This range of rooms was certainly common to the two periods of the existence of the house. There must have been steps or a slope up to the east in the corridor, as the level on which the *pilæ* are laid in Room 16 is 6 feet higher than that of the mosaic pavement of Room 6, and 1 foot 6 inches higher than that of the gravel floor of Room 13. Very possibly the steps were situated where the prolongation of the east wall of Room 13 crosses the corridor.[a]

The central courtyard is roughly rectangular. It had a gravel floor, which lies at a mean depth of 3 feet 3 inches below the present grass level. It was surrounded by corridors. The south corridor was, in the earlier house, 2 feet 8 inches wider than in the later. The earlier north wall still exists, parallel to the later north wall, and 2 feet below the level of the doorway into the courtyard which lies opposite Room 13. To the west of this doorway a drain 6 inches deep and 7 inches wide crosses the corridor. It has a cemented bottom and is covered with slabs of stone. Its purpose is not clear, for after passing through the north wall of Room 12 by an aperture 8 inches by 7 inches, at a level 2 feet above the floor of the room, it suddenly stops. Further, after passing through the later north wall it is blocked by the earlier one, which seems to effectually prevent its discharging into a pit which lies on the further side. This pit contained black earth and bones; it had a large slab of sandstone as a cover, and on each side of it are short walls as if there had been a porch and a doorway here at one time.

The west corridor did not exist in the earlier house, and no traces of foundations which could have belonged to it were discovered in excavating this side of the courtyard. The space immediately to the east of Room 17 was, in the earlier house, part of the same room, but in the later house was thrown into the corridor, its east wall (in which was the doorway) and north wall being broken down to below the later floor level, which was 2 feet 8 inches below grass level. Room 17, on the other hand, became the east half of a new room, which ex-

[a] The rooms at the eastern end of this range (Rooms 13, 14, 15, and 16) must have been accessible directly (or indirectly in the case of Room 16) from the south corridor of the courtyard (see the sections). If this were not the case one would be compelled to resolve the house in its later state into two: a corridor house to the south with a yard attached (Rooms 1-16), and a courtyard house with rooms on three sides of it to the north (Rooms 17-33).

tended as far as the new west wall of the house.[a] That the east wall of Room 71 is a later addition is shown by the fact that the coloured plaster of the earlier room, which is white with a broad red band, passes behind both ends of it.

The other rooms on the west side of the west corridor call for no special remark. The west wall of the courtyard of the earlier house is easily traceable under them. In the later house they had doors direct into the corridor, but of those of Rooms 17 and 18 no definite traces could be found, and they had apparently no intercommunication with one another. They had cement floors, though of that in Room 18 no traces remained *in situ*.

Turning to the north wing we have, as already noticed, the north-west angle of the older house in Room 21. The old north wall can be traced right along the rooms of this wing, and the wall now dividing Rooms 22 and 23 is built across the middle of what was probably the main entrance to the original house from the high road, which is formed by two walls projecting beyond the line of the front of the house, so that there was probably a porch here. This entrance is crossed by two short walls, which were probably merely sleeper walls, as yellow plaster is preserved *in situ* on each side of its doorway, and neither of these walls is preserved above its level. Beyond this point the old north wall can be traced as far as Room 27, where it turns to run south.

To the same period as this wall belongs probably an open drain which runs just in front of the main entrance parallel to the façade of the house. In front of the entrance we see traces of its reconstruction. The east portion here runs right under the west portion. It appeared at first sight as though both fell into a pit at this point, but the removal of a few stones from the west drain showed that it was of later date, as the east drain[b] was seen to continue under it, being completely blocked up when it was constructed.

The floor of the west drain is also on a level with the bottom of the painted plaster to be seen on the west side of the west of the two wing walls of the earlier entrance to the house, a fact which seems to make out the drain as later.

The line of the east section is continued to the east of House No. 7 along the front of House No. 8, which is set slightly further back from the main road than House No. 7. Here, however, instead of being paved with stone slabs and being apparently open, it is not paved, but is roofed with slabs

[a] In the south-west angle of Room 17 was found a fragment 1 foot 0½ inch high (broken) of a capital of yellow sandstone; shaft 7¾ inches in diameter, abacus 1 foot 0½ inch square.

[b] The east section is about 10 inches wide and 6 inches in depth, the west 1 foot wide and 8 inches in depth.

carefully keyed into the wall of the house on the south, and with stones above as well as below them on the north.[a]

When House No. 7 was reconstructed and the north wall pushed further north, the drain of which we have been speaking was blocked up by the new foundations in several places, the wall being built on its north side. In front of the new façade we find a strip about 4 feet wide, which seems to have been a gravelled footpath;[b] then comes an open drain, 2 feet in width and depth, and then the high road, which runs just inside the wall separating the excavations from the modern road.[c] It is, however, difficult to understand why this drain should end abruptly opposite Room 23,[d] and not reappear till a point some 125 feet further east in front of Room 16 of House No. 6, there being no traces of its ever having existed in the intervening space. Nor is it easy to see why its sides are in places actually above the level of the Roman high road. They are always at least flush with it (see sections, Plate IX.).

In the rooms of the north wing, floors belonging to both the earlier and the later periods are to be seen. There was apparently a floor of gravel, or of large stones in Room 24, on a level with the open drain which ran in front of the earlier house, belonging to a footpath or edging between drain and house wall. The upper floors are mostly of gravel concrete, though in Room 23 there is rough pitching which overlies the earlier north wall of the house, and continues into the corridor.[e] Towards the east end there are traces of constructions of an intermediate period; the cross walls parallel to the east walls of Rooms 24, 25, 26, block up and are therefore posterior to the open drain, though they are anterior to the latest form of the house. There are gravel floors corresponding in level with these walls. There are, however, no traces elsewhere of this intermediate

[a] In this drain at the north-east angle of House No. 7 some lumps of clinker and wood mixed were found, also some green glazed pottery at a depth of 4 feet. The pottery, from the depth at which it was found, is very likely Roman, and some similar specimens have been found at Silchester. In front of House No. 8 the drain was half full of water-washed dark sandy stuff.

[b] Near the north-east angle of House No. 7 it is 4 feet 4 inches wide, 6 inches above road level, and mortared. Here there is no drain.

[c] The ancient road is paved with gravel, and its bed is composed of a hard mass of sand and pebbles for a depth of 2 feet 9 inches to 3 feet 3 inches, after which comes loose sandy stuff with bits of stone for 1 foot 10 inches, and then the hard deep red clay bottom. In another place the thickness of the road bed is only 2 feet, while the sandy stuff with bits of stone is 2 feet 3 inches thick.

[d] It is possible that at this point there was an entrance into the house from the street: no traces of one have, however, been found either here or elsewhere in the north façade.

[e] In Room 22 there are no floors traceable. Here was found part of a small column 7 inches in diameter.

period, and it is probable that only the north-eastern corner of the house was affected by the changes that then took place. It will be noted that the earlier wall parallel to the east wall of Rooms 25 and 26 carries on the line of the east wall of the east corridor.

In the north-east angle of Room 27 a fragment of walling is seen projecting 1 foot 6 inches into the room which carries on the line of the front of House No. 8.[a]

All through the east wing traces of earlier foundations are to be seen. (See below.) The only one of the dividing walls in the rooms themselves which seems to belong to the later house is that separates Room 29 from Room 30. The floors in this wing are entirely gone.

House No. 8.

To the east of House No. 7 is a building which, like it, faces the main road traversing the city from east to west, but is set about three feet further back from it. This we have called House No 8;[b] but its purpose and arrangements are by no means certain, as it has been almost everywhere destroyed to below the floor level.[c]

Two parallel walls are frequently found running close together in this block, and seem to indicate that the whole might be divided into four separate buildings: (A) Rooms 1 to 4 (with which were once combined the earlier foundations, that were in later times buried under the east wing of House No. 7); (B) Rooms 5 to 11; (C) Rooms 12 to 19; (D) the shrine. It is further to be noted that in the west portion of the north wall of the house, which is at any rate earlier than the later form of House No. 7, there are two blocks of sandstone with dowel holes in them, which must have been removed from some other building. The state

[a] Two gravel floors were found in Room 27, one 2 feet 8 inches to 3 feet 9 inches below grass level (having subsided in places) the other 7 inches deeper, both below the level of the lip of the drain.

[b] The measurements of the rooms in House No. 8 are as follows: No. 1, 19 feet 6 inches by 28 feet; No. 2, 18 feet 6 inches by 13 feet; No. 3, 5 feet by 8 feet 6 inches; No. 4, 12 feet 9 inches by 13 feet 6 inches; No. 5, 18 feet by 28 feet; No. 6, 18 feet by 16 feet 6 inches; No. 7, 6 feet by 58 feet; No. 8, 18 feet by 8 feet 6 inches; No. 9, 17 feet 6 inches by 9 feet; No. 10, 9 feet by 13 feet 6 inches; No. 11, 5 feet by 9 feet; No. 12, 8 feet by 12 feet; No. 13, 2 feet 6 inches by 12 feet; No. 14, 13 feet by 10 feet; No. 15, 13 feet by 2 feet 6 inches; No. 16, 13 feet 6 inches by 57 feet; No. 17, 13 feet by 7 feet; No. 18, 15 feet by 29 feet.

[c] The only exceptions are Room 2, which has a roughly pitched floor, while Room 11 has traces of flagging, and Rooms 11, 16, and 20 of rough gravel flooring.

of ruin to which the building has been reduced may be explained by the following passage from Seyer's account of Caerwent :[1]

> There are no traces of the western gateway ;[2] on the left as you enter the town a house is now (1786) building from the spoils of the walls, and on the right a lime-kiln is kept at work, so that this part is likely soon to be obliterated ; for the lime-burner told me that the whole walls were built of limestone.

A great deal of lime-burners' rubbish was, as a matter of fact, found along the east side of the house; and it was noticed in several places that the sandstone had been left in walls from which the limestone had been removed. It is further to be noted that the grass level is from two to three feet below that of the field adjoining it on the east.

House No. 8 had not any structural connexion with House No. 7, there being a narrow alley between them, crossed by three underground tie walls. The northernmost of these continues the line of the front of House No. 8 a little way into Room 27 of House No. 7, and forms the south side of the drain which was suppressed when the later form of that house came into existence. This drain continues to run along the front of House No. 8; the west portion of it is roofed over with flat stones, which are keyed into the walls on each side of the drain. At one point, in Room 17, it has been built over by a later wall which projects beyond the front line of the house, but it continues to the east of this point as far as Room 20, beyond which no traces of it can be found.

Just to the north of Room 16 another drain runs parallel to it, between it and the high road, but only for a length of 12 feet 6 inches, after which it ends abruptly. It seems to be the continuation of the drain found in front of Room 23 of House No. 7, but its meaning is not at all clear.

In Room 5 was found a large slab of sandstone 3 feet ½ inch by 5 feet 2 inches by 2 inches thick, the purpose of which is uncertain.

Room 7 (apparently a corridor) contains a small hearth with a curved end, which must be a later addition.

In Room 20 an interesting discovery was made. Three rough gravel steps ascend from the gravel floor of the room (see Section x y, Plate VIII.) to a platform floored with clay 4½ inches thick (fig. 6), on which was found, though certainly not in its original position, a head carved in sandstone, measuring 9 inches in height by 4⅝ inches across the head, and 3¾ inches across the neck, but considerably weathered (fig. 7). The eyeballs are in relief and surrounded

[1] 'Journal of the British Archæological Association,' iv. (1848) 250.

[2] This is incorrect, as will be seen from our plan.

by an oval depression, the nose is very straight, the mouth small, the ears deeply indented, the hair is entirely worn away. The head is very flat at the back, and was not intended apparently to be seen except from the front. It is also flat at

Fig. 6. Remains of supposed Shrine in House No. 7.

the bottom, and does not seem to have formed part of a statue, as no traces of its attachment to the neck can be seen. If, as seems probable, this is the head of some deity, the gravel steps and clay floor may be the foundation of the shrine, the superstructure of stone having been removed by the lime-burners. This con-

jecture is confirmed by the fact that the wall running south from the south-west angle of Room 20 is partly built of sandstone blocks,[a] in which are cut holes 2 inches deep of different sizes and at irregular intervals, as if intended to support a wooden railing. To the south-east of this shrine is another small open hearth.

Fig. 7. Sandstone head found on site of supposed shrine in House No. 8.

To the south of the house is a large yard, into which Rooms 9—14 project, so that they may be a later addition. In its south wall a money jar of grey ware was found, hidden under a stone, but empty ; it has a small slit in the top, and its maximum diameter is 5 inches. The only similar money jar of Roman date known to us is one in the British Museum, found at Lincoln, but the type is still in use, specimens in red earthenware being not uncommon.[b] To the east of these rooms a pit was found, 14 feet 6 inches in depth, and 5 feet wide at the top, but beginning to taper at 9 feet 4 inches below ground level, so that at the bottom it was only 2 feet 10 inches in width. It contained some sandstone roof tiles, a fragment of a quern of stone, and a good deal of pottery. The sides and bottom of it were puddled with grey clay. Near it was found a piece of a roughly-moulded cornice, 3 feet long by 2 feet 8 inches wide by 9 inches thick, belonging perhaps to one of the piers of the west gate.

House No. 8 is bounded on the east by a long wall which stops and turns east at right angles at the south-east angle of the yard, the line of the eastward wall not corresponding quite exactly with the south wall of the yard. The east boundary of the part of the field now under excavation coincides with this wall up to the point where it stops, but after that runs somewhat irregularly.

[a] In front of these blocks is a rounded block of sandstone, flat at the top and at the bottom, 1 foot in diameter, and 1 foot 3 inches in height. It had apparently been placed there for some purpose which we cannot now ascertain; perhaps for offerings at the shrine.

[b] One dating from the seventeenth century was dug up in Bristol last year, and is figured in the *Transactions of the Bristol and Gloucestershire Archæological Society*, xxiv. 279. There was also found here a portion of an alabastron of Egyptian (?) alabaster, the body of which when complete measured 6 inches in height and 2½ inches in diameter inside, the thickness of the sides being ¾ inch.

Inasmuch as the wall contains no doorways (so far as we have been able to discover) and has no cross walls running west from it, it seems clear that it is the boundary wall of the next block to the east.

Block A.

At some distance to the south of the irregular wall which bounds the yard of House No. 8, and just to the east of the large yard which lies to the south of House No. 7, there is a small building which we have called Block A.* The rooms are small, and the walls chiefly of sandstone, the limestone having been removed by lime-burners. No traces of floors or doors are anywhere visible.

Upon the east wall of Room 1 there is an open hearth, in which some furnace refuse was found, while near it some fragments of iron ore were discovered. Another hearth was found some 25 feet to the south of Room 1, and a third to the south-east of the block.

To the east of Block A a wall runs northwards to join the south wall of the yard of House No. 8. Just to the east of the point where it does so a very large pit was found. The dimensions may be seen from the section given on Plate VIII.

The pit has been excavated through the hard red clay, below which comes the sandstone rock; after 1 foot of this comes a layer of white clay 3 inches thick, and then the rock again.

In the pit was discovered a sandstone trough measuring 2 feet 2½ inches by 1 foot 3½ inches outside, and 1 foot 6 inches by 6¾ inches inside, broken in two pieces; also several large paving slabs 2 inches in thickness, under which was found a good deal of pottery. Four Samian bowls, two with figures, two plain, and three black jars can be reconstructed entirely, and there are many other fragments. Part of a Samian bowl with perpendicular sides bears the incuse stamp outside IANVARISO (*Januaris officina*) reversed, while the most perfect Samian bowl bears the following inscription in cursive characters in relief on the outside underneath:

AGVNIS F(ECI)T

At the bottom of the pit some pieces of oak timber were found. There were also discovered two human skulls at a depth of about 12 and 15 feet respectively, while a whole human skeleton was found under the wall at the north-west angle of the pit. The skeleton had possibly been placed under the wall "for luck," as is still the custom with some savage tribes. The body lay east and west, the head being in the recess left in the wall, to the west. As the Romans are not known

* The measurements of the rooms of Block A are as follows: Room 1, 15 feet 6 inches by 17 feet; Room 2, 4 feet wide; Room 3, 9 feet by 9 feet 6 inches; Room 4, 7 feet 6 inches by 9 feet; Room 5, 9 feet long.

to have buried victims under the walls of buildings, if this was the purpose of the burial it may be taken as an instance of Celtic influence at Caerwent.

The pit probably served as a water reservoir, though its great depth compared with its width is noteworthy. It would have been quite watertight.

To the east and south of this pit is another large open space enclosed by rough walls, in a very fragmentary condition, in which no discoveries of any importance were made. Much lime-burners' refuse was found here.

Fig. 8. Plan of Caerwent, showing discoveries down to November, 1901.

V.—*Some familiar Letters of Charles II. and James Duke of York addressed to their daughter and niece, the Countess of Litchfield; transcribed and edited by* Harold Arthur, Viscount Dillon, *Hon. M.A. Oxon, President.*

Read 6th February, 1902.

The letters contained in the volume before us now preserved at Ditchley consist of five written by Charles II. and forty written by James II. while Duke of York. They are addressed to Charlotte Fitzroy, Countess of Litchfield, their daughter and niece. Sir Edward Henry Lee, the fifth baronet of that name, was by patent dated 5th June, 1674, created Earl of Litchfield, Viscount Quarrendon, and Baron Spelsbury. On 11th August, 1674, he was betrothed to Charlotte Fitzroy, daughter of Charles II. by Barbara Villiers, Countess of Castlemaine, and on 3rd August, 1670, created Duchess of Cleveland. The bride and bridegroom were very young, he having been born 4th February, 1663, and she 5th September, 1664. A little later, on 22nd February, 1677, the actual marriage took place, and, as recorded on their monument in Spelsbury Church, "at their marriage they were the most graceful bridegroom and most beautiful bride, and that till death they remained the most constant husband and wife."[a] Their married life lasted forty-two years, during which time she bore him eighteen children, the youngest of whom, Robert, eventually succeeded as fourth and last Earl of Litchfield.

The letters cannot claim to be of historical value, for no new details of public interest are disclosed in their perusal, but they are in a way interesting as showing the affectionate tone of Charles's correspondence, evidences of which we have already seen in his correspondence with his sister "Madame," published in Mrs. Cartwright's interesting life of that unfortunate princess. In contrast with this domestic style of the king's letters stands out the very polite and to some degree kindly tone of his brother's letters. Without any formal commencement they all end with "your obedient humble servant, J.," a curious way for a royal uncle to sign himself in writing to his niece.

[a] The Earl of Litchfield was made Lord Lieutenant of Woodstock Park and High Steward of Woodstock 1680, and Gentleman of the Bed-chamber to Charles II. 2nd April, 1683.

Charles's letters show also a kindly and considerate tone for another daughter, the Countess of Sussex, and "Your loving Father" is as affectionate a signature as any one could desire.

Many of James's letters are dated from Edinburgh, where he was occupying the post of Lord High Commissioner, and his somewhat plaintive remarks about the perjury and slander from which he and his co-religionists suffered in England are rather interesting.

But his letters touch on many subjects besides politics and religious troubles. His account of the wreck of the *Gloucester* is rather cold-blooded, though perhaps not out of keeping with the feelings of the "quality" for the less fashionable people in those days. The very frequent references to outdoor sports, stag-hunting, fox-hunting, and "Goffe," written evidently as it was pronounced, show that the somewhat gloomy James did know how to enjoy himself at times. As to indoor amusements, amateur theatricals, in which his daughter, the future Anna, took part, and the frequent mention of basset and crimp, serve to inform us how the better or richer classes amused themselves. The memoirs of de Grammont are apt to give the idea that in the court of Charles and also in that of his brother much less innocent pleasures occupied most of the time of the ladies and gentlemen of that day. Perhaps the extreme respectability of the Duke's niece influenced his correspondence with her, but from whatever cause it might be, there is little scandal ever alluded to, except the irregular proceedings of Lady Henrietta Berkeley.

The troubles connected with the City of London Charter and the election of the Sheriffs are referred to and are treated less summarily than the trial and execution of Colonel Russell. There is but one duel mentioned, though we know that they were pretty frequent in Charles's reign, but at all events that one ended fatally.

For notes and illustrations of letters of the time of Charles II. one would naturally look to Pepys, Evelyn, de Grammont, and St. Evremond. Unfortunately Pepys, the most congenial source for such help, is of no use, his diary only covering the years 1660—1669, while these letters extend only from February, 1681, to October, 1684. Evelyn is less intimate in his information, and de Grammont is so regardless of chronological sequence and so much concerned with the scandals of the reign as to be of little assistance when used for illustration of the respectable and domestic Countess of Litchfield.

Fortunately, in Sir Narcissus Luttrell's diary, extending from 1678—1714, I have been able to find notices of the movements of the court which have enabled me to date all but one of the forty-five letters. In the letters the month and day

of the month are given, but very rarely the year, and without such assistance as Luttrell affords it would be impossible to assign some of the letters to their proper years.[a]

Card play is mentioned frequently in the letters, but only two games are mentioned by name, Crimp and Basset.

Crimp appears to have been played in England long before the date of these letters, but of the rules of the game, its original nationality, and in fact of anything but slight mention in plays, essays, etc. I have failed to find any information.

Ben Jonson, in the *Magnetic Lady*, 1632, ii. 1, says: "Let her bear up to-day, laugh and keep good company at Gleek or Crimp.

In 1710, Addison, in the *Tatler*, No. 250, says: "As for the women of virtue, it will not be difficult for me to find them about midnight at crimp and basest."

In 1720, Gay, in *The Funeral, a Town Eclogue*, says: "At crimp Myrtillo played."

Basset, on the other hand, must have been but recently introduced into England. In Haydn's *Dictionary of Dates* it is called Basset or Bassette or Pour et contre, and is stated to have been invented by a noble Venetian in the fifteenth century, and introduced into France in 1674. Strutt, following Johnson's Dictionary, gives the same origin for the game, but Hoyle, in his first edition, makes no mention of it.

In the *Compleat Gamester*, printed for Charles Brome at the "Gun," the west end of St. Paul's Church, 1709, is, "The Game at Basset never before printed in English." In chapter xxxviii. of the above is "Basset, a French game." It is there described: "This Game amongst all those on the Cards, is accounted to be the most Courtly, being properly, by the understanders of it, thought only fit for Kings and Queens, great Princes, Noblemen, &c. to Play at by reason of such great Losses, or Advantages as may possibly be on one side or other, during the time of play.

"It is in its Nature not much unlike our late Royal-Oak-Lottery; And as that by the Lottery-man's having five Figures in two and thirty for himself, must certainly be a considerable Profit to him, in length of Time, so here the Dealer that keeps the Bank having the first and last Card at his own dispose, and other considerable Priviledges in the dealing the Cards, has (without doubt) a greater Prospect of Gaining, than those that Play: this was a Truth so acknowledged in France that the King made a Public Edict that the Priviledge of a Talliere, or one that keeps the Bank at Basset, should only be allow'd to

[a] The references to Macky relate to *Memoirs of the secret services of John Macky Esq., &c.*, including *Characters of the Court of Great Britain* drawn up by him by the direction of the Princess Sophia, and published by his son Spring Macky, London, 1733.

Principal Cadets, or Sons of great Families, supposing that whoever was so befriended as to be admitted to keep the Bank, must naturally in a very short time become possessed of a considerable Estate. But all others for fear of ruining private Persons and Families, are confined Politicly to a Twelve-peny Bank, tho' here they have the liberty of staking what they please."

The book then goes on to give the names of the parties to the game, such as Talliere, that is the one who holds the bank. The Croupiere who helps him by noting the cards on which money has been staked, and "The Punters," a term for every one of the gamesters at this play. The different terms of the game are then given, as The Fasse, The Coŭch, The Paroli, The Masse, The Pay, Alpiew, Sept et le va, Quinze et le va, Trent et le va, Soissant et le va, etc. These four last terms are applied to the multiplication of the stakes, and were supposed to be the "Chance that shows the advantage of this Game." They were the real gambling portion of the game, for if a punter or player could last on to the Soissant et le va, he received on the favourable card turning up sixty-seven times his stake. The bank may thus be broken, but, as the book says, "this very rarely happens." Basset appears to have been a very popular game, and some rather than not play at all will punt at a twopenny bank.

We may suppose that there was something in the extreme gentility of the game of basset, for Pepys in his Diary, though referring to cribbage, which he could not play, and to gleek and ombre, does not once mention it.

A propos of the Duchess of York playing the game, a note of Evelyn's, under date 13th July, 1686, says that "standing by the Queene at Bassett I observed that she was exceedingly concerned for the loss of £80, her outward affability much changed to stateliness, since she has been exalted."

Again, in describing the behaviour of the Princess Anne on her arrival, 21st February, at the new court, soon after her father's flight, "within a night or two sate down to play at Basset as the Queen her predecessor used to do."

Sir George Etheridge, or Ethrege,[1] wrote A Song of Basset commencing

> Let Equipage and Dress despair
> Since Basset is come in.

And ending with

> What pity 'tis, those conquering Eyes
> Which all the World subdue
> Shou'd while the Lover gazing dyes
> Be only an Alpŭe.

[1] He died 1694. His poems were first published 1704.

In 1716 Pope wrote "Thursday, the Basset Table," one of a series of Town Eclogues published anonymously. In this poem several of the terms used in play occur, and its superior attractions are recorded in the verse:

> At the Groom porters, batter'd bullies play
> Some Dukes at Marybone bowl time away.
> But who the bowl or rattling dice compares
> To Bassett's heavenly joys and pleasing cares.

Cockfighting also took up some of James's time and the court indulged in it twice a day, the duchess and her daughter attending what now is considered a cruel and, what is more, an illegal amusement. The sporting works of the day and the *Complete Gamester* will supply all the information necessary to understand what the latter work calls "this pleasing art," as well as a "sport or pastime so full of delight and pleasure that no game in that respect is to be preferred before it." The details given in this work are most curious.

"The gentle, cleanly, and most ingenious game at Billiards," as it is called in the *Complete Gamester*, printed for Charles Brome, at the Gun, the west end of St. Paul's Church, 1709, differed considerably from the game as we now know it. Strutt's *Sports and Pastimes of the English People*, first published in 1801, differs greatly from the *Complete Gamester* in the description of the game, and I cannot but think that the latter is more likely to be correct. Strutt says that the French game much resembled the Italian method of playing known in England by the name of Trucks, but he omits to describe Trucks. The *Complete Gamester* says Billiards had its first origin in Italy, and when he comes to describe Trucks, which he says is an Italian game and much used in Spain and Ireland, he adds, "it is not very unlike billiards but more boisterous, and, in my opinion, less gentile" (? genteel). The table, the names of the parts, and indeed the whole business differs greatly from billiards.

Fig. 1. Signet of King Charles II. (½).

The letters, it will be seen, are written on gilt-edged paper, and in most cases were enclosed in covers or sheets folded to contain them and bear the address. It is curious that while Charles sometimes spells the name correctly, James always writes it "Lichfield."

Fig. 2. Signet of James Duke of York (½).

The seals used by Charles and James were, we suppose, private ones. That of the king is a small oblong one with the corners cut off, with the initials C. R. intertwined and surmounted by the

crown, which is supported by two cherubs (Fig. 1). The seal used by James is oval in form, with the cypher D L between two palm branches, and ensigned with a royal coronet (Fig. 2).

PRESUMED DATES ARE IN BRACKETS.

[1681]	9th	Feb.	James from	
[1681]	29th	Mar.	,, ,,	Edinburgh
,,	6th	June	,, ,,	[,,]
,,	18th	July	,, ,,	Edinburgh
,,	20th	Aug.	,, ,,	,,
,,	18th	Oct.	,, ,,	,,
,,	26th	Nov.	,, ,,	,,
,,		Dec.	,, ,,	,,
1682	11th	Jan.		[,,]
,,	31st	Jan.		Edinburgh
,,	19th	Feb.		,,
,,	22nd	Mar.		Newmarket
,,	30th	Apr.		Windsor
,,	9th	May		Edinburgh
,,	21st	June		Windsor
,,	2nd	July		St James's
,,	9th	July		Windsor
,,	2nd	Aug.		St. James's
[1682]	18th	Aug.	James from	Windsor
[,,]	28th	,,	,, ,,	London
[,,]	15th	Sep.	,, ,,	London
[,,]	29th	,,	,, ,,	London
[,,]	2nd	Oct.	Charles ,,	Whitehall
[1682]	22nd	Oct.	Charles from	Whitehall
[1683]	14th	Mar.	James ,,	Newmarket
[,,]	21st	,,	,, ,,	Newmarket
1683	19th	July	,, ,,	London
[,,]	28th	,,	,, ,,	London
[,,]	9th	Aug.	,, ,,	Windsor
[,,]	15th	,,	,, ,,	Windsor
[,,]	25th	,,	,, ,,	Windsor
[,,]	3rd	Sep.	,, ,,	Winchester
[,,]	13th	,,	,, ,,	Winchester
[,,]	21st	,,	,, ,,	Winchester
[1683]	29th	Sep.	James ,,	London
[,,]	19th	Oct.	,, ,,	London
[,,]	4th	Dec.	,, ,,	London
[1684]	16th	Mar.	,, ,,	Newmarket
[,,]	3rd	Apr.	Charles ,,	[Whitehall]
[,,]	5th	Aug.	James ,,	Windsor
[,,]	28th	,,	,, ,,	Winchester
[,,]	5th	Sep.	Charles ,,	Winchester
1684.	8th	Oct.	James ,,	Newmarket
[1684]	28th	,,	,, ,,	St. James's
N.D.	11th	Aug.	Charles ,,	Windsor

[1681] Feb: 9.

I have receved your letter and shall as you desire me, write to M^r^ Hyde about your affaire, being I assure you very desirous to serve you, and am very sorry that my former endeavors to do it, have signyfied so little, I hope this will have a better effect, and that the businesse will be dispatched to your satisfaction and in this as well as in all other things you may depend upon my furthering any of your concerns, being more than any body your humble servant.—J.

When you write to me do it without ceremony, and remember me very kyndly to your Lord —J.

For my Neece the Countesse of Litchfeild.—J.

The Countess of Litchfield was now 16½ years of age, and had been married four years. She had had two children.

[1681]
Edinburgh March 29.

I have received yours of the 15 in the which you give me an account of your affaire, and tho I am sorry it could not be done as you desired yett I am glad to see you are satisfy'd with M^r^ Hyde and that you have a promise to have some thing done, I am sure he will still do his part knowing how concerned I am for you and if at any tyme it be proper or necessary for me to mention any of your concerns to him or to any body els lett me know it, that I may do you what service I can, if this place afforded any newse I should tell it you but it dos not tis from Oxford from whence any considerable newse is to be expected, when you write againe to me do it without ceremony and be assured you shall always find me to be your most humble servant.—J.

For my niece the Countesse of Lichfield.—J.

The Duke of York was, as the letter shows, at Edinburgh, where he held the important post of High Lord Commissioner, and the reference to Oxford was from the Parliament being about to assemble there on the 21st March. The king went thither on the 12th by Windsor, arriving on the 14th. He was lodged at Christchurch College, the Queen at Merton College. The Duchess of Portsmouth and Nell Gwyn also went with the crowd of courtiers. The Lords sat in the Divinity School, the Commons in the Convocation House. On the 28th the Parliament was dissolved, the king returning by Windsor to Whitehall, where he arrived on the 30th. Some called it the Jewish Parliament, it being dissolved on the 8th day, alluding to that people's manner of circumcision on the 8th day (*Luttrell*).

[1681]
[Edinburgh] June the 6:

I am very glad to find by yours of the 24; that before this your warrant was to be paid so that I hope you will now be put to no further trouble, and if at any other tyme or in any other thing you thinke I may be servicable to you pray lett me know it, that I may serve you in it, this place affords but very little newse all things being very quiat, and like to continu so, for here fals witnesses dare not come perjury being death if it had been so in England so many innocent people had not suffred, and things would have been quiater then they are, we have here very long days and no hot weather and this toune begins to be very

empty of company, I heare you are going to Windsor but no apearance of my seing you there this sommer pray lett me heare from you some tyms, and be assured you shall ever find me to be your most humble servant.—J.

Pray when you write do it without ceremony.—J.

For my Niece the Countesse of Lichfield.—J.

[1681]

Edinburgh July 18.

I am very glad to find by yours of the 12: from London, that you are so well after your lying in, and may you long continue so, and I hope as well as you that it will not be long before I may have the satisfaction of seing you there, since his Ma: affairs go so well, but in that I must be governed and submitt to his pleasur as I allways have done. My Daughter arrived here yesterday morning early, having had a very good passage, and now this towne begins to fill with company againe the meetting of the Parliament being to be so sone which I am confident will behave themselves better then those of late have done in England, tis no newse to tell you that Cargill* the great covenanting feild preacher, is taken, he has been once examined before the Councell, and is to be it againe to morrow, after which hee will be sone try'd, and I beleve condemned, which is all I have now to say but that you shall ever find me to be your most humble servant —J.

For my Neece the Countesse of Lichfeild.—J.

In 1679 the Covenanters in the West of Scotland became restless, and on 3rd May Archbishop Sharp was murdered at Magus Muir. After their successful attack on Graham of Claverhouse at Drumclog, 1st June, the Duke of Monmouth was sent against them, and on 22nd June they were defeated at Bothwell Brigg. Some of them, however, held out under Cameron and Cargill, two preachers. Allegiance to the king was renounced, and in a fight Cameron was killed 20th July, 1680. Cargill was not captured for about a year, but he and four others were eventually hanged 28th July, 1681. Some of his followers were executed, and others were drafted into a Scotch regiment in the service of the King of Spain.

The Scotch Parliament met on 28th July, and was adjourned to 1st August and then to the 5th August, 1681.

In October five more of Cargill's followers were executed.

The Countess of Litchfield on the 6th June, 1681, at Windsor, had a second son, Edward Henry, Lord Quarrendon, Colonel of the Guards. He died 21st October, 1713.

The Countess of Rochester (Miss Mallet) died suddenly of apoplexy in August, 1681.

* See Burnet, i. 512.

Princess Anne arrived in Edinburgh on 17th July, having embarked on the 12th.

She was now a little over 16 years of age.

[1681]

Edinburgh Aug : 20 :

You must wonder if I have not soner answerd yours of the 2 :, since I have had so much businesse upon my hands ever since I received it, by reason of the sitting of the Parliament, for although a Parliament here be not so troublesome as the English ons have been of late, yett it taks up all ons tyme, I am very glad to find by yours that you had received some part of your mony, as for newse things go very well here, and most of the affairs of concerne are past I meane the giving of mony to his Ma : for the keeping up of the troups, the Dutchesse and my Daughter ride abroad almost every day, the weather being very good, I have now no more to say to you but that you shall always find me to be your humble servant.—J.

For my Neice the Countesse of Lichfield.—J.

[1681]

[London] October the 18 :

the last I had from you was from Woodstock, and beleve this will find you in London, where you will easily beleve, I should be very glad to be, but his Ma : dos not thinke it fitt, and I must submitt to his pleasur, which I hope will be to send for me, when the L Shaftsburys tryal is over, which is sayd must now be very sone, I am very much obliged to you for concerning your self so much for me as you do, and am very glad you are satisfyd with L[d] Hyde, you may be sure that any with whom I have any power, shall further any of your concerns, this place is now so empty that it affords but little newse, bassett is much in faschion, and some tyms we go to the plays, these players come out of Ireland and are prety tolerable, I am a going to see them this afternone, so that I have not tyme to say more, but that you shall always find me to be as truly your humble servant as you can desire.—J.

For my Neece the Countesse of Lichfield.—J.

[1681]

Edenburgh Nov : 26 :

I had by the last post yours of the 17 : by which I find you had received my last to you whilst you were in the country, and that it was not long since you were come to towne, it was high tyme to leave the country, tho if you had had as fine weather as we have had, till with in these two days, one might have past ons tyme well enough there, I assure you that we here do not passe our tyme so ill as you in England thinke we do, for we have plays ride

abroad, when tis good weather, play at Bassett and have a great deele of good company, but for all that one wishes ons self with ons freinds at London, I am sure I do, but when that will be only God and the King knows, my Daughter acted on thursday last, for the third and last tyme her play, there were five of them that did their parts very well, and they were very well drest, so that they made a very fine show, and such a one as had not been seen in this country before, for other newse there is none all things being very quiat so that I have no more to say at this tyme but that you shall always find me to be your most humble servant.—J.

For my Neece the Countesse of Lichfeild.—J.

1680, 20th Oct.—"Their royall highnesses parted from hence (London) for Scotland; they went down the river in their barges, to embark on the men of war appointed to attend them" (*Luttrell*).

1681, 26th June, Sunday.—"The lady Ann, accompanied with severall ladyes of quality, embarked for Scotland" (*Luttrell*).

July.—"The 12th, the lady Ann, attended with severall persons of honour, imbarqued for Scotland" (*Luttrell.*)

July.—"We are advised from Scotland that the lady Ann, with the other persons of quality, were safely arrived at Leith, and from thence conducted with great splendor to Edenburgh" (*Luttrell*)

28th July.—James took his seat at the Parliament House, Edinburgh, being Commissioner.

The Parliament was then adjourned to 1st August, then to the 5th.

Lord Shaftesbury was indicted 24th November, 1681. The bill was ignored, and later he fled to Holland, where he died 22nd January, 1683.

Mrs. Betterton, actress and wife of the famous actor, was chosen in 1674 to instruct the Princesses Mary and Anne in elocution. Afterwards she was engaged to teach the Princess Anne the part of Semandra in Lee's tragedy of *Mithridates*.

The Scotch Parliament on the 14th August, 1681, passed two Acts, one acknowledging and asserting the right of succession to the imperial crown of Scotland, the other ratifying all former laws for the security of the Protestant religion (*Luttrell*).

[1681]

Edenburgh Dec:

I receved on sonday yours of the 15: by which I was very sorry to heare that Lady Suffolk was dead, and Lady Betty Felton so very ill that there was no hops of hir, and by

the letters come this day I heare she was dead also, you will by the last post have heard what a terrible fall especially to look to, the Dutchesse had and realy t'was a miracle she was not spoyled, and tis a great mercy she had no more harme, she is now God be thanked as well as can be expected after such an accident, and her legs meend a pace but yett she is tyde to ly on hir bed or sitt in a chaire, and it must be yett some day before she must walk, all things are very quiat here, and like to continu so, and tho we passe our tyme well enough here, we should be very well pleased to be at London, and it puts one out of humor when one thinks one is not like to be there so sone, I shall say no more now only to assure you that you shall always find me to be your humble servant.—J.

Pray do not write to me with ceremony.

For my Neece the Countesse of Lichfeild.—J.

1681, 5th Dec.—"His majestie went to Windsor and returned again that day" (*Luttrell*).

"The countesse of Suffolk was seized with an apoplexy the 12th and died the next day. The lady Betty Felton, her daughter, was seized also with a fitt of the same the next day, and died of it" (*Luttrell*).

The Countess of Suffolk was succeeded as Groom of the Stole by the Countess of Arlington.

28th Dec.—"The countesse of Suffolk and her daughter, the Lady Betty Felton, were carried through the citty in great state, attended with severall of his majesties coaches, and many of the nobility's, in order to their interment at Saffron Walden in Essex" (*Luttrell*).

Lady Suffolk was Barbara, daughter of Sir Edward Villiers, and widow of Sir Richard Wentworth. By her second husband, Lord Howard de Walden, third Earl of Suffolk, she had Elizabeth (Lady Betty), who married Sir Thomas Felton of Playford, co. Suffolk, and left an only daughter, Elizabeth, wife of the first Earl of Bristol.

1681, Dec.—"The dutchesse of York [at Edinburgh] had lately a very dangerous fall from a horse as she was rideing; but being speedily lett blood, and means used, she is pretty well recovered" (*Luttrell*).

1681.—On the 30th December Lady Litchfield's brother, Henry, Duke of Grafton, received from the king's hand his commission as colonel of the Foot Guards[a] at a review in Hyde Park, and the day after New Year's the duke entertained the officers of his new command.

[a] Colonel Russell, brother to the Earl of Bedford, having disposed of that command.

On the 23rd November, 1688, when Grafton deserted James II., the king gave the command to Lord Litchfield,[a] who held it till 23rd December, when he resigned it into James's hands at Rochester, and on 31st December Grafton again became colonel until his death at Cork, 9th October, 1690.

[1682]
January the 11:

I was very sorry to find by yours of the 31: of last month, that you had been so ill as you could not answer myne soner, and that when you wrot you were not well enough to go abroad. I hope this will find you in perfect health which that it may, I am sure no body wishes more than I do. I have very little newse to write to you from hence all things being very quiat here, and like to continu so pray God it may do so in England, we have now downe right winter weather, which is the first we have had this season, so that there is no sturing abroad, which is a great mortification for me, that love best the divertions without doors, then those within, the Dutchesse plays offten at Bassett, and my Daughter dances country dances as offten, which the Dutchesse cannot yett do, her leg not being quite well enough for that tho she walks about. I have now no more to say but that you shall allways find me as truly your humble servant as you can desire.—J.

For my Neece the Countesse of Lichfeild.—J.

[1682)]
Edenburgh Jan: 31.

I have received yours of the 24: and if the place where you are affords so little newse pray what must this do, where we have no Morocco nor Russian Embassadors to divert us nor God be thanked such disorderly yonge men as M^r^ Harry Wharton, to disturbe the play house or kill horses, this it seems is the second tyme he had done those feats, all things here are very quiat every where, and now we have very good weather which I make use on by being abroad every day and playing at Goffe, which is the only divertion I can have without doors, this not being a good hunting country, within doors we have plays, Bassett and Billiards, and do not pas our tyme so ill here as may be you thinke, however I should be glad to be at London, but where so ever I am you may be sure I shall be always your most humble servant.—J.

For my Neice the Countesse of Lichfeild.—J.

1682.—On New Year's Day an ambassador from Morocco arrived in England and reached his lodgings in the Strand on the 5th.

The lions which he brought as presents to the king were put in the Tower menagerie and some ostriches into St. James's Park. On the 11th the ambassador had audience of the king and queen in the Banqueting House, Whitehall, when it

[a] Robert, Lord Hudson, was appointed Colonel of the 12th Regiment, 30th November, 1688.

was noticed that neither he nor the king bowed to each other. Two days later the ambassador and his suite gave an exhibition of riding and shooting before Charles in Hyde Park. On the 16th the king granted an audience in his bedchamber, and afterwards, by permission of Charles, a visit was paid to the Duke of Monmouth, who invited the ambassador to hunt in the New Forest. On the 27th, before a very great crowd, he and his suite gave another performance in Hyde Park, and during this and the next month visited the sights of London, being made a member of Gray's Inn and Fellow of the Royal Society. In March a treaty of peace was signed, and in April the ambassador stayed with the king at Newmarket. After visiting Oxford, Cambridge, etc. he left England at the end of July, having had a successful and pleasant stay in this country.

Evelyn in his Diary gives a very full account of this visitor, and speaks highly of the behaviour of him and his suite on all occasions, bearing himself with "extraordinary modesty and gravity. In a word the Russian Ambassador still at Court behaved himself like a clowne compar'd to this civil heathen." The Russian had arrived on 20th November, 1681, and was lodged at Charing Cross. He had his audience on the 23rd, when he gave Charles rich hangings he had brought with him, and furs and ermines. He came to settle a free trade with England. On the 10th January, after having been well entertained and shown about to the playhouses, etc. he had his audience of leave. Evelyn was not alone in his estimate of this envoy, for Charles Bertie, writing to Viscountess Campden, 22nd November, 1681, says, "Yesterday the Grand Czar's Envoye made his entry with a lamentable attendance of lowsy fellows." Lady Anne Howe, writing to the Countess of Rutland about the Moroccan, says, "he has a very ill opinion of the ladies of England, and I thinke some of them have given him too just reason for it . . . . the thing they did was soe shameful that I know not how to write it to your Ladyship."

Evelyn, under 7th February, 1682, mentions Mons. Isaac as being reputed the best dancing master.

Mr. Harry Wharton was the youngest son of the 4th Lord Wharton, and so a sort of uncle of Lady Litchfield. "He was a brave bold man . . . . assumed the habit of a player and sang Lilibulero[a] before James II. which wasn't pretty manners. He died (a colonel) in the camp before Dundalk, 1689, and did not leave behind him a better officer or truer Englishman."

In February, 1686, Peregrine Bertie writes to the Countess of Rutland that Harry Wharton who would but for the falling of his horse have separated the com-

[a] Composed by his brother, Lord Wharton.

batants in the fatal duel between the Duke of Grafton and Jack Talbot in Chelsey fields on February 2. Talbot was killed and —— Duncombe, the duke's second, was wounded. Harry Wharton the same night had "the ill fortune" to kill an Irishman who was lieutenant in the same regiment. They fell out at supper and the Irishman struck him twice before he drew, "soe that hee cannot fail of coming off very well."

Wharton was in 1685 a lieutenant in the Coldstream Guards. In 1687 he was captain, and William III. made him colonel of the twelfth regiment of foot, Lord Litchfield's old corps. He died at the siege of Carrickfergus, 28th October, 1689, and was buried in Dundalk. Story says of him "a brisk bold man, and had a regiment that would have followed him anywhere, for the officers and men loved him. . . . . He was of a comely handsome person and gifted with a rare understanding."

[1682]
Edinburgh Feb: 19:

I find by yours of the 9 that it was reported I was to be suddenly with you, and that the Dutchesse was with Child, I wish the first were as true as the second, for then I should sone have the satisfaction of seing you at London, but tho it be so much taked on where you are, I heare nothing of it from those who aught best to knew it, the letters of this day brought the newse of Tom: Thynns having been assassinated, and how ready some people there were to lay it upon the poore Catholiks, and twas well the murtheres were so sone found out, all things are so quiat here, that I have no newse to tell you, but that we have plays twise a weeke here in this house, the Dutchesse not caring to stur out, but that divertion will sone be at an end for when Lent coms we shall have no more plays, so that bassett will be the cheef divertion with in doors, the weather now grows good so that now every day almost I get abroad, I have now no more to say but that you shall always find me to be your humble servant.—J.

For my Neece the Countesse of Lichfield.—J.

Tom Thynne was killed 12th February, 1682, and there was much excitement about it in London.

[1682]
Newmarkett Mar: 22:

I (hope) you will pardon me for being so long before I answerd your letter I receved since I came hither, but realy what with wayting on his Ma: the Scots affairs, and so much company as come to me, I have not any tyme to myself, but now that I have it I would not

faile to lett you know how much I am obliged to you for what you have sayd to me in your letter, I hope now I shall have the satisfaction of seing you at London the begining of next month, how sone I shall go into Scotland after that I do not know, we have the worst weather now I ever saw, at this tyme of year which makes this place not so pleasant as it used to be, but for me I like it very well since I have the happynesse of being with his Ma: I shall say no more now but to assure you that I shall always be your most humble servant.—J.

For my Neece the Countesse of Lichfeild.—J.

1681-2, March.—"His royall highnesse the duke of York arrived at Yarmouth in one of his majesties yatchs the 10th, and was entertained by the magistrates of the town at dinner; and that afternoon he went to Norwich, attended with a great number of gentlemen, where he came that night, and was splendidly entertained by the mayor and aldermen: the next morning he parted thence for Newmarket, accompanied by many gentry, where he arrived that evening, and was received by his majestie with all the expressions of kindnesse imaginable, and since his arrivall there hath been waited on by most of the nobility to pay their respects to him" (*Luttrell*).

1682, April.—Viscountess Campden, writing to her daughter, the Countess of Rutland, at Belvoir Castle, says:

"I heare nothing of our Earldome but if wee have it my brother Norrys will be made fast (first), and some says that the Earldome my Lady Lichfield has to sell for 8000 must bee the first Earle of all, and she is not to sell it under the degree of a Vicounte, which I believe will longe bee a finding. All wonders my Lord would parte with his money tell the Earldom was past."

The Hon. James Bertie, sixth son of Montague, second Earl of Lindsey, was born 1653, was created Baron Norreys of Rycote 12th May, 1675, and Earl of Abingdon, 30th November, 1682. He married first Eleanor, daughter and heiress of Sir Henry Lee, third baronet. She was first cousin of the Earl of Litchfield.

Laurence Hyde, second son of the first Earl of Clarendon, who was created Earl of Rochester 29th November, appears to be the only other earl created in 1682.

1681, 15th Nov.—Charles Bertie, writing to his sister, Viscountess Campden, at Exton says, "My brother Norreys is to be made Earl of Abingdon by the favour of Lord Halifax," and on 18th November he writes to the Countess of Rutland to the same effect, but adds "by the singular favour of my Lords Hyde and Halifax."

[1682]

Windsor April 30:

I was in hops before this you would have been here, but now by what I am told I you are not likly to come hither before I go, and so I shall not have the satisfaction of seing you, till I come back from Scotland, for when I go from hence I shall go straight to the yacht, and not call in at London at all, and this I do by advice, and not by inclination for I should have been very glad to have stayd there one night, but pray do not take notice that I have sayd this to you, as for the tyme of my setting out from hence I believe it will be on Wensday, if the ship I am to go in which is at Portsmouth can gett out of the harbor by that tyme, as for newse there is none here, for as for the weather it is the same with you, that it is with us, only it keeps us prisoners, for there is no sturing out farther than the little Parke, the waters being still so much out and the ways so durty, that I have not been able to go farther, and this day has been so very rainy that I have not been able to walke abroad at all but a little in the morning early upon the terrasse, I shall trouble you with no more now but assuring you I am very sorry I shall not see you before I go, and that you shall always find me to be your most humble servant.—J.

1682, 8th April.—"His majestie and his royall highnesse returned from Newmarkett (to London), who were waited on by most of the nobility here in town, and at night was ringing of bells, bonefires, &c."

"His majestie is at Whitehall, in the lodgings of the duke of York, his own being building up; and the duke of York is at St. James's."

"The 22d their majesties and his royal highnesse parted from hence to Windsor."

"The 26th, at night, happen'd vast showers of rain, which did considerable damage to severall places . . . . . and most of the roads in England so bad, that they're hardly passable" (*Luttrell*).

Edenburgh May 9: 1682.

I could not soner then now lett you know I had receved yours of the 2: from London, for I had it not till I was in Margate road, as your Lord may have told you, and then had not by me to write, you will before you receve this have heard of my being saffly arrived here, tho the frigat in which I was in, was lost upon a Sand called the Lemmon, as I came hither, God be thanked I and most of the people of quality gott of but L^{d} Roxborow, L^{d} Obrian and two or three Gentilmen were drownd, and many of my under servants, but this accident has not discouraged the Dutchesse from going by sea and I hope to sett out from hence by monday next, which will be by that tyme you receve this letter, and if I have

a faire wind it will not be long before I shall be at Windsor where I shall assure you myself that I shall always be your most humble servant.—J.

For my Neece the Countesse of Lichfield.—J.

James, in the life written by himself, and quoted by Macpherson,[a] says the wreck occurred "through the unskilfulness or treachery of Captain Ayres, the pilot, who was afterwards tried and condemned for it." Ayres' intention was to follow the colliers' route betwixt the coast and sandbanks, but the commanders were against it, and ordered him to go out to sea, thinking to clear them all. But he still persisted to tack, fancying he had time enough to go within the banks. At last leave was given him when the commanders thought themselves far enough out at sea to go beyond them all, but they were deceived. "For soon after the ship struck on the Lemon Ore near Yarmouth roads where she stuck some time and had not too much haste been made to clear her all the passengers and seamen might have been saved. As soon as she came into deep water she sunk and at least a hundred persons in her. The Duke of York got into his shallop and went on board the yaucht taking the Earls of Perth and Middleton with him, none offering to go into it but whom he called viz. Churchill and one or two more. But the other boats coming to their assistance, most of the persons of quality and the Duke's servants got off also; and many more might have been saved had it not been for the timorousness of the boatmen, hindering them from coming near the ship when they thought her about to sink, for fear of sinking with her. Those left as they were ready to sink gave a loud huzza! when they saw the Duke of York safe."

The *Gloucester* was a third-rate of 765 tons, 60 guns, and 340 men.

Amongst the "quality" who were drowned was James Hyde, James's own brother-in-law, but he does not mention him.

James came back to England from Leith in *The Happy Return*, 625 tons, 56 guns, 280 men, and arrived 27th May. Charles met them at Erith. About 130 persons were lost. Lemmon Ore Sands are off Yarmouth. Ayres was tried on 6th June and condemned to perpetual imprisonment.

Sir John Berry, however, was on the 25th June made commander of the *Henrietta*, a third-rate frigate, 763 tons, 62 guns, 355 men.

Robert, third Earl of Roxburgh, a Privy Councillor to Charles II., married Lady Mary Hay, daughter of John, Marquis of Tweeddale, who survived him seventy years.

[a] *Original Papers*, 1688-1714 (London, 1775), i. 135.

Donogh or Donatus O'Brien was elder son of Henry, Lord Ibrackan, who died 1678, in the lifetime of his father, Henry, seventh Earl of Inchiquin, by Anne, daughter of the fifth Earl of Thomond. Donogh O'Brien married in 1682 Lady Sophia Osborne, daughter of Thomas, Duke of Leeds. His widow afterwards married William, Lord Lempster, and was mother of Thomas, Earl of Pomfret.

Windsor June 21

If you have had no better weather since you went from hence, then we have had, you will not have past your tyme very well in the country, and if it continus as bad as it is now, we shall not have much pleasure in the voyage we are to make, which will now be certainly on friday, his Ma: as I am told will sett out to-morrow night, after she has supped with the King, tho there be neither heat nor dust, whilst we are all away, the Dutchesse will be very much alone, but it will not be for long for I think we shall be back here againe by this day sennight, when I come to London tis likly I may have some newse to write to you, but this place affords none new so that I shall end, and that with assuring you I shall ever be your most humble servant.—J.

For my Neece the Countesse of Lichfield —J.

On the 23rd June the king came to town, went down to Woolwich in his barge, and returned at noon. The journey referred to was to Chatham to see the *Britannia* launched. This took place on 27th June. She was a first-rate of 1,540 tons, 100 guns, and 780 men. *See* 15th September of this year. The *Royal Sovereign*, which the *Britannia* was intended to exceed in size (though she did not do so), was built in 1637, was a three-decker, and it was computed cost £3,500 every month at sea. The cost of building such a ship was £62,432. When she was built she was supposed to be the largest ship in Europe.

[1682]

S^{t}: James July 2

Since I wrot to you last, I have been almost in perpetual motion, for what with my going bettwene this place and Windsor, and the voyage I have made with his Ma: in his yachts downe to the Northforland, I have hardly been two days in a place, we came back this morning from our sea voyage, having mist the D^{r}: of Portsmouth who came up by land from the Downs, as we went downe by sea, which made us make hast back, we had very bad weather and some little accidents which rather served to divert us rather then any other thing els, his Ma: will not, as I beleve stay here longer then wensday next, and till then he will stay, it being the day for the election of the Sherifs and tomorrow I intend to go to Windsor to see the Dutchesse, and to be back on tuesday night, the Dutchesse of

Portsmouth looks clearer than she did at least it seems so to me, so that her going to the waters must needs have done hir good, as for newse of the towne I have been so little in it that I am not well enough informed of it, to ventur to tell you any of it, and besids now that M^rs^ : Bromley is in towne, I supose you will not faile to heare them, when I know any worth your knewing I shall be sure to lett you know them, and beg of you to beleve I shall always be your most humble servant.—J.

Louise de Keroualle, Duchess of Portsmouth, so created 19th August, 1673, was born in 1649, and came over in the suite of the Duchess of Orleans ("Madame") in 1670. In 1682 she went to Bourbonne to take the waters, and in Paris, on her way back, she met the Duchess of Cleveland.

After the death of Charles she left England in August, 1685, and returned to France in 1686, where she died 14th November, 1734, aged 85.

1682, June.—"The 27th, a first rate ship was launched at Chattam, called the Britannia, being larger than the Soveraign."

"The 30th also his majestie went down the river to Sheernesse, there being six meals of provisions carried."

3rd July.—"His majestie is returned from Sheernesse; and the dutchesse of Portsmouth is also arrived at Whitehall from France" (*Luttrell*).

[1682.]
Windsor July 9.

I had but yesterday yours of the 3: and came away from London so some after diner that I could not till now lett you know I had receved it, I see by it that you had then had but one of myne, and that you had not had better weather then we here, I hope now you have the same that we have, and then you will have very good and warme which is so resonable at this tyme of yeare, till this affaire of the Sherifs shall be over, we shall not be long settled here, for on thursday his Ma: gos back to London, and I beleve the Queene to, but I hope we shall not stay there above a day or two there, for I should be sorry the Dutchesse should be any longer alone here, she having been it so long already. I send this under M^rs^. Bromleys cover who can so well informe you of all the newse here that I need not write any more to you, but to assure you that you shall always find me to be your most humble servant.—J.

For my Neece the Countesse of Lichfield.—J.

"The 23rd, his majestie came to town, and that day went to Woolwich in his barge, and returned at noon."

1682, June.—"The 24th, being the usuall day for electing of sheriffs for the citty of London, many of the livery men appeared at Guildhall; one party cryeing up North and Box, and the other Dubois and Papillion . . . . There was some kind of riot and tumult committed in the poll; but at last the sheriffs also adjourned the court till Tuesday next at 9 of the clock . . . . But the 25th the lord mayor went and complained to his majestie against the sheriffs; who being summoned to appear at the councill, they did accordingly the 26th . . . . they were committed by order of councill to the Tower."

"The 27th, the lord mayor, aldermen and citizens of London mett at Guildhall about election of sheriffs: there were great numbers of the citizens, but his lordship thought fitt to adjourn the court to Wednesday sevenight."

"The 30th, the sheriffs of London, Mr. Pilkington and Mr. Shute, were brought up from the Tower of London to the court of kings bench on a second habeas corpus . . . . The two principalls were bound in 2000*l.* apeice, and the bail in 1000*l.* each" (*Luttrell*).

On the 5th July the sheriffs having appeared at the Court of King's Bench went to the hustings. There was a poll, with the result that North had 1557, Box 1609, Papillion 2754, Dubois 2709, and the two last were declared sheriffs.

"The 8th, his majestie went to Windsor."

"The 13th, his majestie returned from Windsor to Whitehall early in the morning."

"The 16th, early in the morning, his majestie went for Windsor" (*Luttrell*).

Mrs. Bromley appears in the 1684 State of England as one of five bedchamber women to the Duchess of York at a salary of £150.

[1682]

S^{t} James's Aug: 2.

I had yours of the 27: of the last month on monday, went a hunting on tusday, and came this day hether, and so could not answer it soner, the Dutchesse will not now stur from heree till she is up againe, but I shall go offten bettweene this and Windsor, as for newse Madame la Dauphine is brought to bed of a Sonne, which is no small joy to the King of france, Lady Eliz Delaval is now a widdowe, her husband died last night at Windsor, on friday I intend to wayte on his Ma: againe, and shall make use of this faire weather to hunt in, which is a divertion you dare not use, in the condition you are in, I am but just come to towne, and so have no other newse to tell you, and hope you will always do me the justice to beleve that I shall always be your most humble servant.—J.

For my Neece the Countesse of Lichfield.—J.

Lady Elizabeth Delaval was daughter of Sir James Levingstone, who was created Earl of Newburgh in 1660. She married Robert Delaval, eldest son of Sir Ralph Delaval, who, 2nd April, 1646, married Lady Anne Leslie, Mistress of Lovat, daughter and heiress of Lord Leven. Sir Ralph died 29th August, 1691, aged 68, and Lady Delaval died in 1696. Robert Delaval died 1st August, 1682, and his widow afterwards married Henry Hatcher.

[1682]
Windsor Aug : 18 :

I realy have not had so much tyme to my self as to writ to you, since the Dutchesse was brought to bed, till now, for on wensday what with wayting on his Ma : all the time he was in London, that day, and businesse, I could not then write and yesterday that I came from London I was a hunting, had a great chasse and came not home till after twelve at night, the Dutchesse is now I thanke God very well, she was a little out of order yesterday it being the third day, but I have heard this day that she much more at ease, the child is a lusty one, as they tell me, and very well, to morrow I intend to go back to London, and on wensday his Ma : is to passe by there to go downe to Greenwich to see a new yacht lanched, and to be back here at night, and he designs to be at Winchester by the last of this month, there being a plate to be then run for there, yonge M^r^ Griffin is very ill of his fall and they begin to fear he will dy, I have now no more newse to tell you so that I shall give you no further trouble but the assuring you of my being as much as ever your most humble servant.—J.

Charlot Maria, third daughter of James, Duke of York, by the Duchess Mary, was born at St. James's on the 15th August, 1682, and on the 17th christened by the Bishop of London. Her godfather was the Duke of Ormond, and her godmothers Countess of Arundel and Countess of Clarendon. She died 6th October following, and was buried in the vault of Mary, Queen of Scotland, on 8th October.

Young Mr. Edward Griffin was the son of Sir Edward Griffin of Braybroke, Gentleman of the Privy Chamber in 1670, and Treasurer of the Chamber. Sir Edward died in 1681, and his son became Lieutenant-Colonel of the Duke of York's Foot Guards, now the Coldstreams.[a] On 3rd December, 1688, he was raised to the peerage as Baron Griffin of Braybrooke. He stuck to James II. and followed him to France, and was outlawed. In 1708, when an invasion of Scotland was attempted, he was taken prisoner off the coast, and put in the

[a] In 1685 he was colonel of the 1st troop of Horse Guards (Life Guards). Having followed King James's fortunes he is now in France. He was always a great sportsman and brave; a good companion, turned of sixty years old (*Macky*).

Tower, where he died, November, 1710. His grandson, Edward, third Lord Griffin, died 1742, when the title became extinct.

[1682]

London Aug: 28

At my arrival here last night I receved yours of the 25: by which I was very sorry to heare you had been in disposed, and that that had hindred you from writing to me, the going to Winchester will not hinder, nor shorten his Ma: going to nor his stay at Newmarkett, but I cannot yett tell you when the Newmarkett journey will be, he having not yett sayd when he will come from Windsor hither, tho I asked him yesterday when it was to be, but I beleve that some tyme next week he will go and try his new yacht, which was lanched last weeke, and then I cannot thinke he will go back againe to Windsor it being so late in the yeare, I beleve before this getts to you, you will have heard of Lady Henriette Berkleys being run away from her fathers, some tyme last weeke, there is yett no newse of her whither, nor with whom she is gone, tis talked as if she had drownd hir self, but I cannot beleve that she was of such a temper as to have done that, on Wensday I go back to Windsor, and the next day with his Ma: to Winchester were so ever I am I shall still be your most humble servant.—J.

For my Niece the Countesse of Lichfield.—J.

Lady Henrietta went off with Forde Grey, third Lord Grey of Werke. He married Mary, daughter of George, Lord Berkeley, and had an only daughter, Mary, who married Charles Bennet, second Lord Ossulston, and afterwards Earl of Tankerville. Lord Grey was in the Monmouth rebellion and commanded the horse at Sedgemoor; there he deserted and made terms by giving evidence against his friends. William III. in 1695 created him Viscount Grey of Glendale and Earl of Tankerville. He was afterwards a Lord of the Treasury, a Privy Councillor, and in 1700 Lord Privy Seal. For seducing his sister-in-law, Lady Henrietta, he was committed to the King's Bench Prison and tried with five others on the 23rd November, and found guilty.

Lady Henrietta declared she was the wife of Sir Wlliam Turner's son. There was a row, so she and her husband were committed to the King's Bench Prison, but after her release she left her husband again.

Soon afterwards, being concerned in the Protestant or Rye House Plot, Lord Grey fled to Holland.

He was taken in disguise at Ringwood after the battle of Sedgemoor, and sent to the Tower with Monmouth. He died in 1701.

[1682]
London Sep: 15:

I had the satisfaction of yours of the 5: just before I went downe to Chatham with his Ma: but could not answer it soner then now, I see by it you then beleved Lady Hen: Berkley had made her self away, but it provs not to be so, for she is certainly gone away with some body, but with whom is not yett knowne, tis sayd she has written to her father, and declared it was discontent made her go away, but gives no account where she is, his Ma: is very well pleased with the new ship he went to see at Chatham, called the Britannia and as well with his new yacht the Fubbs, she out sailing all the old ons, the Newmarkett journey is put of till the begining of October, I am sorry we shall be away when you come to towne, and by what I heare amongst the women beleve you will be brought to bed before we come back hither, I shall now say no more but to assure you that I am more then ever your most humble servant.—J.

The *Britannia*, a first-rate, being larger than the *Soveraign*, was launched at Chatham 27th June. See letter of 21st June. She was 5 tons less and carried 35 men less than the *Soveraign*.

1682, Sept.—"The 11th, his majestie and his royall highnesse went down the river to see the new yatch[a] sail that was lately lanched at Greenwich, and returned to Whitehall again the 13th" (*Luttrell*).

Lady Litchfield was confined of a son, James, 13th November, 1682, at St. James's Park.

London Sep: 29: 1682.

I have had your last letter in which you tell me you thinke you shall be brought to bed before we come back from Newmarkett, I believe it may be before his Ma: returns hither, but not before I do, for I intend to make a step hither from thence some day of the weeke after the next weeke, for a day or two, by which tyme I hope you will be here, monday is now sett for going to Newmarkett, affairs having gone very well in tho Citty yesterday where the two Loyal Sherifs North and Riche were sworen and are now in possession of their office, which is a great mortification to the Whigs, they are now electing a new L[d] Mayor, and there is not yett come to this end of the towne an account who it is they have chosen, if he be not a good man he will not be aproved on by the King, I am just now told

[a] The *Fubbs* yacht, of 8 guns, with a crew of 30 men. Our Fellow, Mr. W. Barclay Squire, has kindly referred me to Sir J. Hawkins's *History of Music*, 1776, in which work, at vol. iv. p. 359, it is noted that the king's yacht derived her name from the Duchess of Portsmouth, whose plump and pleasing figure had got her that name from her royal lover. There is still in Greenwich a public-house called The Fubbs Yacht.

the pole is put of till monday, which maks me doubt whether his Ma: will on monday, but that will not be knewn till to morrow, I shall now say no more but to assure you, you shall always find me to be your most humble servant.—J.

1682, Oct.—"The 3rd, in the morning early, his majestie and his royall highnesse, with the court, went for Newmarkett" (*Luttrell*).

Sir Thomas Gold was elected Lord Mayor on the 4th October.

Sir Dudley North, son of Dudley fourth Lord North, died 1691.

Sir Peter Rich died while alderman 26th August 1692.

[1682]
Whitehall 2 Oct.

I have had so much businesse since I came hither that I hope you will not think that I have neglected writing to you out of want of kindenesse to my deare charlotte, I am going to newmarkett to morrow, and have a great deale of businesse to dispatch to night therefore I will only tell you now that I have five hundred guinyes for you w^ch^ shall be ether delivered to your selfe or any who you shall apointe to receave it, and so my deare Charlotte be assured that I love you with all my harte being your kinde father.—C. R.

For my Lady Litchfield.

1682, Oct.—"The lady Maria Charlotte, his royall highnesse's youngest daughter, was taken very ill with convultion fits, without hopes of recovery of which an expresse being sent to his royall highnesse at Newmarkett, he took post, and came to St. James's the 5th at night."

"The 6th, the lady Charlotte Maria, daughter to his royall highnesse, departed this life, to the great greif of their royall highnesses."

"The duke of Yorks daughter, lately deceased, was interred privately in Westminster Abby the 8th."

"His majestie continues still at Newmarkett, diverting himself with hawking and horseracing; of which latter there have been severall considerable races run."

"The 14th, his royall highnesse went for Newmarkett" (*Luttrell*).

[1682]
Whithall 22 Oct:

I should not have been so long in writing to you my deare Charlotte but that I was at Newmarkett where too all day about businesse I had little time to spare, and though I have very much businesse now, yett I must tell you, that I am glad to heare you are with child, and I hope to see you heere before it be long, that I may have the satisfaction my selfe of telling you how much I love you, and how truly I am your kinde father.—C. R.

For my Lady Lichfielde.

The king returned from Newmarket 21st October, 1682.

[1683.]

Newmarkett Mar: 14:

If this place had had any newse worth your knowing, I should have write it to you before now, but it never was duller nor lesse diverting, for ths weather has been so very bad, and so cold, that it has very much spoyled all the divertions here, it having been hardly wether to stur out of doors, so that cock fighting, has been almost the only thing one could do here, and that for the most part we have twise a day, I have been a fox hunting thrise and for all the cold season, have had very good sport, to morrow I am to go to it againe, the Dr: of Portsmouth is not very well, having complained of a paine in her head all day yesterday with a paine in her stomake and an inclination to vomite, she was lett bloud this morning, and keeps hir bed, and continues still ill, his Ma: says he will go to Euston, but has not yett named his day, I have now told you all the newse of this place and so shall end which I do with assuring you of my being still your most humble servant.—J.

For my Neece the Countesse of Lichfield.—J.

[1683.]

Newmarkett March 21:

I had last night yours of the 8 but having been a fox hunting yesterday could not answer it till now, and shall be sure to speake to his Ma., as you have writen to me to do, before I leave this place, when I find him in good humour, I should have writen soner to you, if this place had furnished any newse worth writing to you, but till now with in this day or two, there has been very little company here, and I never knew a meetting at this place where there was so little company as now, and I do not beleve there will be much company here at any tyme whilst we stay here, but tho there are not so many people this tyme, yett the weather has been much better then it was this tyme twelve month, and for all it has been a little windy it is not cold, the Dutchesse and my Daughter have been several tyme abroad to take the aire on horse back, and twice to see the cock fighting, for horse matches there has been but one, which was yesterday. but this weeke they say there will be more, her Ma: has not yett playd at Bassett, which makes the drawing roome very dull, and I beleve will not whilst she stays here but the Dutchesse dos, if I had any other newse to tell you I should write it, and beg of you to beleve I shall always be your humble Servant.—J.

1682-3, March.—"The 3d, in the morning early, their majesties and his royall highnesse went from Whitehall to Newmarket, the cariages and wagons being gone three or four daies before."

"The 5th, her royall highnesse went hence (from London) for Newmarket."

"Letters from Newmarket inform, that their majesties are in good health, and divert themselves with hawking, hunting, and horseracing, &c."

"On the 22d instant, at night, between nine and ten, a fire happened at the town of Newmarket . . . . . it consumed above half the town . . . . . but his majesties house received no damage."

1683, March.—"The 26th, in the afternoon, their majesties and their royall highnesses returned to Whitehall from Newmarket" (*Luttrell*).

This was the period of the Rye House Plot, which was upset by the king's early departure from Newmarket on account of the fire.

Fitzroy was created Duke of Northumberland 6th April.

29th March, John Verney writes: "I hear ye Queen & Dutchess are not cater cousins, ye latter having at Newmarket given ye country ladyes leave to come to her in mantos. Her court was every night full & ye Qu sate alone. So when ye fire happed ye Dutchess & Lady Anne went to ye Queen's doore to attend her, but she sent them out word she would be private. Then they went to Ld Suffolks whither the Qu &c being also to goe, said she would fill up ye house her selfe, soe ye Dutchess &c. removed to Rochester's."

"In May the Duke & Duchess of York & the Lady Anne were entertained at Rycote by Eleanor Lee Countess of Abingdon the cousin of Lord Litchfield." (*Memoirs of the Verney Family*, iv. 270).

London July : 19 : 1683.

I have not writen to you since I came here having had so much businesse, and so little tyme to my self, that realy I could not, and besids that I could not have begun to write you newse with out having made my letter long and that I had not leasur to do, but now God be thanked there is so great a discovery of this horrid conspiracy, and some of them as you knowe are condemned, and will be executed to morrow and next day, that we have not so much businesse to do, the Prince of Denmarke is come in to the river, and will I beleve be here this evening, which makes me write now because this afternone, I should hardly have tyme to write then, and now I shall be more punctual of doing it, but now I shall say no more but assure you I shall always be your most humble servant.—J.

The "horrid conspiracy" was the Rye House Plot, which had failed four and a half months before.

1683, July.—"The 19th, in the afternoon, prince George, brother to the king of Denmark, arrived at Whitehall, and was kindly received by their majesties

and their royall highnesses, being come to make his addresses to the lady Ann, daughter to his royall highnesse."

"The 21st, William lord Russell, being lately condemned on account of this new conspiracy, was brought in his own coach from Newgate, with a most extraordinary guard of watchmen, and the train'd bands on each side of the coach and behind, accompanied with Dr. Tillotson, dean of Canterbury, and Dr. Burnet, in the coach: he went very unconcerned to the place of execution, which was at the west end of Great Lincoln's Inn feilds,[a] where a scaffold lined with black was erected on purpose. There were many spectators, and numerous guards of the kings horse and foot. He said but little, but delivered a paper to the sheriff (afterwards printed), and prepared himself, after praying, for his execution, to which he submitted himself very chearfully; but Ketch the executioner severed his head from his body at three strokes, very barbarously" (*Luttrell*).

[1683]

London July 28:

The marriage is to be this night and I write now before it is over because should I stay till then, I should not have tyme to do it the post going away this night, for their Ma: will be both there and I beleve will stay at S[t] Jamess till they are bedded, the Dutchesse Lady Anne, and Prince George are gone to the play, and I am sent for to attend his Ma: so that I can say no more but that I shall always be your humble servant.—J.

For my Neece the Countesse of Lichfield.—J.

1683, July. "The 28th in the evening was celebrated at St. James's by the bishop of London, the mariage between prince George and the lady Ann, his majesties niece" (*Luttrell*).

[1683]

Windsor Aug: 9:

I have just now received yours of the 8: and twas very very charitably done of you to write so in favor of old Col: Legge as you have done, I immediatly went and spoke to his Ma: in his favor and sent to L[d] Clarendon in whose gift it seems it is, who tho he had an engagement upon him, for an old servant of the family, will see what he can do to lett Jack Legge have it, I am just this moment a going to London so that you must pardon me for saying no more now but that I shall always be your most humble servant.—J.

I intend to be back here againe by Sonday.—J.

For my Neice the Countesse of Lichfield.—J.

[a] 'Right against the Marquis of Winchester's house where the wrestlings are used to be.' (*Verney*, iv. 271.)

[1683]
Windsor Aug: 15:

I would not defer writing to you any longer, tho there be but very little newse sturring here, since you went from hence, for London, as those who come from thence, say, is very empty, and when that is, you will easily beleve this place to not very full, but that dos not hinder bassett being almost every night at the Queens and Dutchesses, and crimp at the D^e^ of Portsmouths his Ma: was a buck hunting on Monday last in Cranborne, the Dutchesse and the rest of the Ladys that care to ride were there, twas the first tyme She and my daughter had ever seen that sport, they liked it very well, you have your share of the ill weather, which has hindred any sturing out of doors for these two days, to morrow I am to stag hunt, and have no more to say now, but that you shall always find me to be your most humble servant.—J.

1683, August.—"His majestie and the court, haveing been a considerable time in town since the discovery of this new plott (Rye House), returned the 1st instant to Windsor" (*Luttrell*).

Crimp is mentioned in *The Spectator*, No. 353, 11th March, 1711-12.

Henry, Earl of Clarendon, was Treasurer and Receiver-General of the Queen's Household in 1684.

Colonel Legge was fourth son of Edward Legge, Vice-President of Munster, by Mary Walsh. He was lieutenant-colonel of the Marquis of Antrim's regiment in Ireland *temp.* Charles I., and was long time a prisoner at Plymouth and condemned to death. He was afterward committed to Bristol. In James II.'s reign he was made Deputy-Governor of Jersey and Ranger of Whichwood Forest, Oxon. He died 1702, aged 109 years.

Windsor Aug: 25:

I had yours of the 22: two days since but my going to London yesterday hindred me from answering it till now that I am come back from thence, I was very sorry to find by it, you had been troubled, with with a paine in your eare, and a defluction on one side of your head, but was well pleased to see it was over and that you had been a hunting, the Dutchesse liks that sport now very well, and had a very fine chase the other day, she stays this day w^th^ my Daughter, to see the faire and do not intend to be here till to-morrow, night, the post is ready to go, so that I have not tyme to say more but to assure you that I am still your most humble servant.—J.

For my Neece the Countesse of Lichfield.—J.

Winchester Sep: 8.

Till last night I had not yours of the 4, and you are in the right to say this country is a very proper place for women to ride in, for I never saw a finer, for all feild sports, the Dutchesse and my Daughter, have been severall tyms a hare hunting with little beagles and are mightily pleased with that sport, I have been but once a stag hunting since I came, the voyage to Portsmouth, having hindred me from going oftener, but on monday I intend to go a hunting againe, we went on wensday by Southampton where we embarked, and so to Portsmouth, gott thither by none, and stay there to see the fortifications, and ships, till yesterday morning; that we came from thence, and gott back hither presently after three, in the afternone, none of the Ladys but the D[e] of Portsmouth were there she, went and came by land all the way, his Ma: Hawkes every day, there is yett no positive day named for our going back to London, I beleve it will be about this day fortnight, I have no more to say but that I hope you will be there by that tyme, and assure you I shall always be your most humble servant.—J.

For my Neece the Countesse of Lichfield.—J.

1683, August.—"His majestie, with the whole court, is gone from Windsor to Winchester, to passe some short time" (*Luttrell*).

[1683]
Winchester Sep: 13:

When I came back with his Ma: from the Portsmouth voyage I receved yours of the 7: and tho we have had much raine here, it has happned so, as not to hinder neither hunting, nor hawking, I was out this day a Stag hunting and tho it rained most part of the day, we killed our Stag, after to morrow the Dutchesse, Prince, Princesse, and my self, are to go to Salisbury, to see that Church and Wilton, and on Wensday from Salisbury to Southampton, and thence to Portsmouth in the yachts, and hope to be back here thursday night, or friday morning this night the King declared he intended to go for London on the 25 of this month, which is some days soner then we thought, but I feare as we go soner from hence, we shall stay no more days at London then we did last yeare, before we go to Newmarkett, I have now told you all the newse of this place, and hope it will not now be long before you be at London, I have not tyme to say more now, but to assure you I shall always be your humble servant.—J.

For my Niece the Countesse of Lichfield.—J.

[1683]
Winchester Sep: 21:

I find by the last I had from you that you had ended buck hunting and intended to try if you could keep in at fox hunting, in that country and at this tyme of yeare you may I am confident easily do it, I have now done Stag hunting for this season, and shall begin fox hunting, so sone as I come to London, if it be not to dry, which it will be with out it rains, on tusday their Ma: sett out for London, and I and all myne the day before, but in going to newmarkett, I beleve we shall go after them, there is yett no day named for that journey, but beleve it will be some day the weeke after we arive at London, so that I am affraid, by what you say in your letter, that I shall not see you before we come back from Newmarkett, but then I hope I shall, and assure you my self that you shall always find me to be your most humble servant.—J.

For my Neece the Countesse of Lichfield.—J.

1683, Sept.—"Their majesties and the court returned from Winchester to Whitehall the 25th" (*Luttrell*).

[1683]
London Sep: 29:

I receved yours by your brother Grafton the day after I came to towne, and have but little newse to tell you, nor can I yett positivly say when the King gos to Newmarkett, that depending upon the affaire of the Citty Charter, which will be ended one way or other by wensday next, so that I beleve thursday will be the sonest day, but how long the stay will be there, is not knewne neither, but his Ma: must be back before the first day of the terme, which you knew is the 23. of next month, the weather is very cold for this tyme of yeare I beleve you are as sensible of it where you are as we here, and be assured I shall always be your most humble servant.—J.

For my Neece the Countesse of Lichfield.—J.

2nd October.—The aldermen and common council of London met and voted 103 against 85 for giving up the charter. So the king caused the attorney-general to enter up judgment in the quo warranto against the charter.

Sir William Pritchard was sworn Lord Mayor and had a commission in nature of a custos over the city. Peter Daniel and Samuel Dashwood were chosen sheriffs, and had their commission to hold their offices during the king's pleasure.

On the 8th the king went to Newmarket, and on the 10th the Duke of York and Prince George followed him.

[1683]
London Octo: 19:

I came yesterday from Newmarkett, from whence I had writen to you, but that M^rs: Bromley being gone into the country, I did not know how to send my letters to you, when I came hither I was in hops to have found you here, but that not being I would not faile to write to you, his Ma: is to be here to morrow, and tho his stay at Newmarkett was not as long as usual, yett there has been more horse races then I can remember at any meetting, there never having past a day, at least when I was there, with out, one and for the most part two or three, and this day there is to be seven, the weather whilst we were there was dry, but very cold, so that there was but very bad hunting, I have been so little in towne that I can tell you no newse of this place, and so for this tyme shall content my self with assuring you that you shall always find me to be your most humble servant.—J.

For my Neece the Countesse of Lichfield.—J.

1683, Oct.—"His majestie returned the 20th to Whitehall from Newmarkett." (*Luttrell*).

[1683]
London Dec: 4:

I am realy ashamed to have been so long without writing to you, and aske you pardon for it, and shall be guilty of that fault no more, at first I thought, by the letter you writ to me, before you went to see the Lady Lindsey, that so sone as you came back to Woodstock you would not have made any long stayin the country, and now of late by the D. of Monmouths being come back, I have realy had so much businesse, that I have had no tyme to my self, as for newse Colonel Algernon Sidney is to be beheaded on tower hill on friday, sure this bad weather, will drive you out of the country, I am sure you can have no divertion there, there being no sturing out of doors, and where you are one is more sensible of the cold then in towne, I shall say no more now but to assure you of my being more then ever your most humble servant.—J.

Algernon Sydney, second son of Robert Sydney, Earl of Leicester, convicted of participation in the Rye House Plot 21st November, was beheaded 7th December, 1683.

The scaffold was erected on Tower Hill at 10 a.m. "The executioner beheaded him at one blow. It is remarkable that he had no minister with him, nor any of his relations, nor did he seem in the least concerned, and made no speech on the scaffold, but gave a paper to the sheriff" (*Luttrell*).

"He was beheaded at one stroke before the Horse Guards came, who were all with ye Foot Guards ordered to encompass the scaffold, and I think the Foot Guards were but just on the hill" (*Memoirs of the Verney Family*, iv. 272).

Elizabeth Pope, Countess of Lindsey, was Lord Litchfield's mother, having married in 1671, after the death of her first husband, Sir F. H. Lee, in 1667, Robert Bertie, Earl of Lindsey, by whom she had Elizabeth, who died young, and Charles, unmarried, in 1710. She died 1st July, 1719.

George Fitzroy Duke of Northumberland was one of the Captains of King James's Horse Guards, which he quitted at the Revolution, and never had any post, though sometimes presents from the king all King William's reign. On the queen's accession to the throne he was made Constable of Windsor Castle and Lieutenant General, and had my Lord of Oxford's Regiment of Horse. He is a man of honour, nice in paying his debts and living well with his neighbours in the country; does not much care for the conversation of Men of quality or business. Is a tall black man like his father the king, about forty years old (*Macky*).

He was created Duke of Northumberland 6th April, 1683. He was elected K.G. 10th January, 1684, while in Paris with the Duchess of Cleveland.

Newmarkett Mar: 16:

I had last night yours of the 14, and by it was very sorry to find that your Nephew was dead, I see you thinke London a dull place without the Court, but I can assure you the court out of London is worse, tho the weather has been very favorable since we have been here, I having not knewne a finer season at this tyme of yeare. I never saw any thing so grewne as your brother Northumberland, and for the newse of this place your Brother Grafton will have told you all we have here so that I shall say no more but that I shall ever be your most humble servant.—J.

For my Neece the Countesse of Lichfield.—J.

This winter was the great frost with the fair on the Thames. The nephew was Charles, Lord Dacres, only son of Anne Palmer, surnamed Fitzroy, natural daughter of Charles II. by the Duchess of Cleveland, by Thomas Lennard, Earl of Sussex. Lord Dacres was born 3rd June, 1682, and died at a year and half old.

1683-4, March.—"The 1st, early in the morning, his majestie went to Newmarket, to pass some time there."

"His majestie, with the court, returned the 22d from Newmarket to Whitehall" (*Luttrell*).

The Duke of Northumberland was now 18 years of age, having been born on 28th December, 1665. The Duke of Grafton, Dryden's "Othniel," who was born 20th September, 1663, was 21 years of age. Lady Litchfield herself was 20 years of age and had had three sons and one daughter.

[1684]
Windsor Aug: 5:

I had not yours of the 29: of the last month till late the night before I went to Tunbridg, and so could not answer it till I came back from thence, I am very glad your sonne is quit recoverd for I was allarmed when I came back and heard you were gone away in such hast, the waters I thank God agree very well with the Dutchesse, she intends to leave of drinking them on saturday next, and to be that night at London, and here the next weeke I am to go to St: Jamess on monday, I beleve you in great paine for your Bro: Grafton I assure you I am so to, but hope now the worst is past, by a letter the King had this morning, from Euston, for other newse, I have none to tell you, and pray do me that justice as to beleve me your most humble servant.—J.

For my Neece the Countesse of Lichfield.—J.

[1684]
3 April

I thinke it a very reasonable thing that other houses should not looke into your house without your permission, and this note will be sufficient for Mr. Survaier to builde up your wall as high as you please and you may shew it to him, the only caution I give you, is not to preiudice the corner house which you know your sister Sussex is to have, and the building up the wall there will signifie nothing to you only inconvenience her I shall be wth you on saturday next, and so my deare charlotte I shall say no more but that I am your kinde father.—C. R.

For my L^{dy} Lichfield.

1684, July.—"Her royall highnesse the dutchesse of York went to Tunbridge to drink the waters, but they not agreeing with her, she returned in a little time." (*Luttrell*).

Euston belonged to the Earl of Arlington, and is near Newmarket.

The Duke of Grafton apparently had smallpox, as the king's letter of 15th September refers to his red face and markings.

[1684]
Winchester Aug: 28:

I intended to have answerd your of the 16: which I had at Windsor from thence, the day before I left that place, but realy I had so much businesse, that I could not do it there, and now before I could write to you from here I had the satisfaction of another from you, of the 25, which was given me just now, we came hither on the 26, this morning I went out a hawking with his Ma; and am just now a going a hare hunting with the Dutchesse, and

to morrow am to hunt the Stag neare Alsford and am likly to be but little in the house whilst we stay here, and the weather continues good, and where so ever I am and what so ever I am a doing, you may be sure I shall ever be your most humble servant.—J.

For my Neece the Countesse of Lichfield.—J.

1684, August.—"The 26th, their majesties and the whole court removed from Windsor to Winchester" (*Luttrell*).

[1684]
Winchester 5 Sep:

Your excuse for not comming hether is a very lawfull one, tho I am sorry I shall be so long deprived of seeing my deare charlotte: your brother harry is now heere and will go in a few dayes to see Holland, and by that time he returns, he will have worne out in some measure the readnesse of his face so as not to fright the most part of our Ladyes heere, his face is not changed tho he will be marked very much; I will give order for the two hundred pounds for your building and the reason that you have had it no sooner is the change I have made in the tresury which now in a little time will be settled againe, and so my deare charlotte be assured that I am your kinde father.—C. R.

For my Deare Charlotte.

Newmarkett Octo: 8: 1684.

I had yours of the 23: of last month a little before I came from London, and had not then tyme to let you know I had receved it, there has been horse races now three days together, on monday, Griffins horse, beat Barnes, yesterday L^d^: Godolphins horse, lost all the three heats to M^r^: Whartons gray gelding and after they were over Staply beat Roe, the long course, this day Dragon was beaten by Whynot and Stapley won another match, it was of the D: of Albemarle, tomorrow I am to go a fox hunting, and hope to have better weather then it has been since I came to this place, for it has rained every day, so that the King could not hawke neither this day nor yesterday and I never saw this place so very durty as it is now, I have given you an account of all the newse it affords, only that the D^r^: of Portsmouth was ill of the colike yesterday but is well of it againe to day, and have no more to say, but to assure you that you shall allways find me to be your most humble servant.—J.

For my Neece the Countesse of Lichfield.—J.

Sidney, third son of Sir Francis Godolphin, was created 28th September, 1684, Baron Godolphin of Rialton, in 1704, K.G., in 1706, Viscount Rialton and Earl of

Godolphin. He married Margaret, fourth daughter and co-heiress of Colonel Thomas Blagge. His son Francis married Lady Henrietta Churchill, daughter and co-heiress of the great Duke of Marlborough.

Christopher, Duke of Albemarle, K.G., was son and heir of George Monk, first duke. He was captain of all the King's Guards of Horse 1679-1685, and died in 1688 in Jamaica, of which island he was captain-general 1686.

Dragon in 1680 belonged to Mr. Baptist May, but later on it seems to have been the property of the king, who at various times owned Woodcock, Blew Capp, Tancot, Corke, and the gelding Mouse, which in 1680 was the Duke of Monmouth's.

In 1671 and 1675 Charles won the plate, riding in the former year against Monmouth, Mr. Eliot, and Tom Thynne, who was murdered 12th February, 1682.

[1684]

S^{t}: Jamess Octo: 28:

I did not answer yours I had of the 11: when I was at Newmarkett, hoping to have found you in towne at my arrival here, but was very sorry I did not, and more when your Lord told me, you will not be in towne till the end of next month, but the weather is now so very cold, and the ground all coverd with snow; that I hope it will drive you out of the country, soner than you intended to leave it, for now there is nothing to be done without doors, I was a hind hunting on Monday but the snow beat us of after I had run two hours, and I intended to have hunted againe to morrow but the snow is not gone and it freeses so hard there is no doing of it. At last the two combatants that had such long swords at Windsor this sommer I meane Prince Phillip, and Bannier have faught, the last is run into the thy, but I do not heare he is in any danger, The D^{s}: of Ports: is in a faire way of recovery, and so is Lady Churchill, I have not tyme to say any more but that you shall always find me to be your most humble servant.—J.

I have been just now told that Bannier is dead, which made me open my letter to tell it you.—J.

Baron de Bannier was killed by Philip, brother of the famous Prince Eugene of Savoy. Bannier was a Swede, and son of General John Bannier, one of Gustavus Adolphus's generals.

1684.—Lady Churchill was daughter of Sir William Drake, bart., and wife of Sir Winstan Churchill of Wotton Bassett. Her son John, afterward Duke of

Marlborough, "came first to Court by the favour of the Duke of York." Her daughter Arabella was by James Duke of York the mother of James FitzJames, Duke of Berwick, the victor of Almanza, Henry FitzJames, "The Grand Prior," Henrietta, wife of Sir Henry Waldegrave, bart., and another daughter who became a nun.

Windsor 11 Aug:

I receaved yours my deare Charlotte just now, concerning the desire you make aboute M^rs^ Youngs reversion, but I was engaged in that matter some dayes since, so as I can only tell you that I am very glad to heare that I shall see you, and tis the greater satisfaction to me, because I did not expect it so soone, and be assured that I am as kind to you as you can expect from your kinde father.—CHARLES R.

For my Lady Lichfielde.

VI.—*On the Destroyed Church of St. Michael Wood Street, in the City of London, with some Notes on the Church of St. Michael Bassishaw.* *By* Philip Norman, *Esq., Treasurer.*

Read 13th February, 1902.

From the artistic and antiquarian points of view, the systematic destruction of our old City churches under the Union of Benefices Act is greatly to be deplored. Under this Act the churches designed by Sir Christopher Wren have especially suffered; and here I will venture to say a few words on that famous architect and his work. A dire catastrophe sometimes calls forth the energies of the master mind that can grapple with it; this was the case, when, after the Great Fire of 1666, by which eighty-six parish churches were destroyed or severely injured, Wren at that time, hardly a professional architect, turned his attention to the City. He first produced a plan for general rebuilding, which would have given free scope to his genius, although at the same time destroying many links with the past. The chief public buildings were to have been grouped round the Royal Exchange, which would have formed an important centre; St. Paul's Cathedral being approached from the east by two broad converging streets. A river quay, in part adorned by the City Halls, would have extended from Blackfriars to the Tower of London; while the churches, greatly reduced in number, were to occupy commanding and isolated sites, their burial grounds being outside the City. For reasons which it is here not necessary to discuss, this proposal was not accepted; and so the City grew again, more or less on its old irregular lines. To Wren, however, was assigned the task of rebuilding or repairing not only St. Paul's Cathedral, but, if we include St. Mary Woolnoth and St. Sepulchre, both only repaired, no fewer than fifty-two other churches,

The remainder were not rebuilt, their parishes being united with adjoining parishes which continued to possess churches. The ancient burial grounds were, to a great extent, retained, and burials continued in them until after the middle of the nineteenth century.

In carrying out the stupendous work of rebuilding, Wren was cramped and thwarted by many difficulties, not the least of these being a want of funds; for although on a few important churches, notably on St. Mary-le-Bow, St. Bride's Fleet Street, Christ Church Newgate Street, and St. Lawrence Jewry, considerable sums were spent; as a rule he was compelled to practise strict economy. It was no doubt partly on this account that wherever the charred walls or merely the foundations of a mediæval church remained in a solid condition they were worked into his building. The ground plans of Wren's churches are often, I might say usually, a good deal out of the square. In such cases he may now and then be merely accommodating himself to the street line, thus including as much as possible within the prescribed area; but as a rule he is utilising old foundations, for whereas it would be in the spirit of Renaissance architecture to plan with something approaching to mathematical accuracy, in Gothic work little attention was paid to the laying out of exact parallelograms.

For something like a century all Wren's City churches remained more or less intact, if I except St. Mary Woolnoth, which was rebuilt by Nicholas Hawksmoor in 1716, its repair having proved a failure. The first to go was St. Christopher-le-Stocks, taken down when the Bank of England was enlarged in 1781. This was followed by St. Michael Crooked Lane, destroyed to make room for the approaches of the present London Bridge. St. Bartholomew by the Exchange was replaced by the Sun Fire Office in 1841, and soon afterwards St. Benet Fink disappeared on the rebuilding of the Royal Exchange. But it was the Union of City Benefices Act, passed in 1858 and 1859 (23 & 24 Vict. c. cxli.), which has facilitated the destruction of the churches designed by Sir Christopher. Seventeen have now succumbed, only thirty-three remaining, and one of these, St. George Botolph Lane, is condemned, while many are more or less threatened. I deplore from my heart this wholesale vandalism, but, while Wren's work is thus perishing before our eyes, we have the small grain of consolation, that we learn much, not only of his methods of construction, but of the mediæval buildings, parts of which he so often incorporated in his own. A case in point is that of the City church which forms the main subject of this Paper.

The church of St. Michael Wood Street, built, or rather very much repaired and remodelled, by Sir Christopher in 1675, at a cost of only a little over £2,550,

was destroyed under the Union of Benefices Act in 1897, and the parish, together with the associated parish of St. Mary Staining, united with that of St. Alban Wood Street.

St. Michael's stood on the west side of Wood Street, near the south side of Gresham Street, in that part formerly called Maiden Lane, and along the north side of Huggin Lane. I will first briefly describe it as restored after the Great Fire. It was one of Wren's cheapest churches, and also one of the simplest. Externally, the east end was the most conspicuous portion, for Huggin Lane on

Fig. 1. Church of St. Michael Wood Street. From a water-colour drawing by P. Norman, 1896.

the south was very narrow, and since the Fire the north and west had always been masked by buildings. This east front was faced with Portland stone, and decorated by four Ionic pilasters carrying a cornice and pediment; between them were three round-headed windows (fig. 1). The clock, which jutted out into the street, was a modern addition, placed there after Billings had made a drawing of the east end of the structure for Godwin and Britton's *Churches of London*, published in 1838.

The tower, as Wren partly rebuilt it, was surmounted by a lantern, which is well depicted in an illustration to Maitland's *History of London* (edition 1756) (fig. 2). About a century ago this was replaced by a dull looking octagonal spire, rising to a height of 130 feet, which of late years was always ignorantly attributed to Wren. Hughson, writing in 1806, says that it had been added during "a late repair." The interior of St. Michael's church was very plain, being more or less an un-

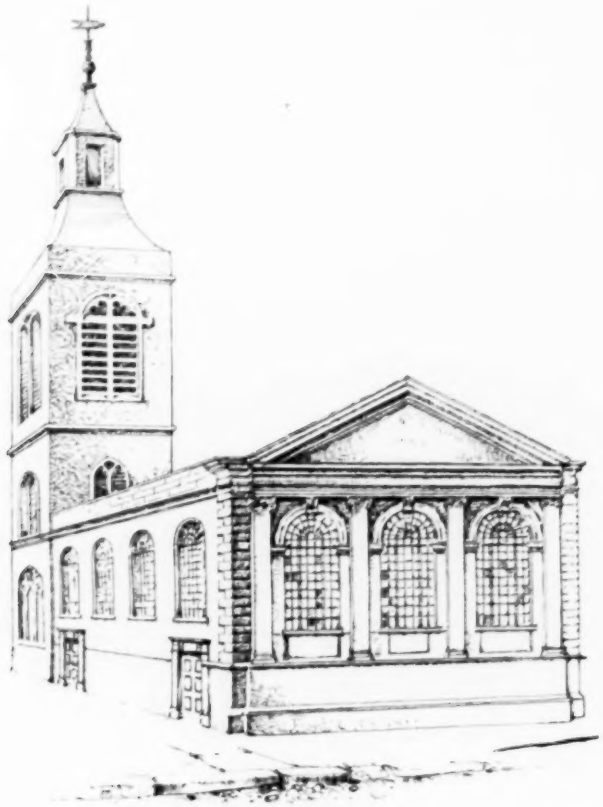


Fig 2. Church of St. Michael Wood Street, with tower as finished by Wren. From Maitland's *History of London*, ed. 1756.

broken parallelogram, though not absolutely so, as the two side walls widened out towards the east end, which was not quite square with them; the tower also, occupying the south-west corner, projected slightly at the west end, and its ground stage was blocked up so as to form an apartment used as a vestry. The

ceiling of the nave, if we may so term it, was flat in the centre, having an ornamental border. Beyond this the sides were coved to the north and south walls only. The beautiful fittings had been wrecked in 1887-88 by men who entirely ignored the fact that they were an integral part of Wren's design. The high pews had been replaced by varnished yellow deal seats, and chancel benches of similar material with pseudo-Gothic poppy-heads; brazen gas-standards to match were also then provided. A handsome wrought-iron sword-rest was sold to the Worshipful Company of Haberdashers, in whose possession it remains. The organ, deprived of its carved wooden case and of the winged figures which once adorned it, was stencilled over with a diaper pattern utterly inappropriate. The carved lion and unicorn, sometimes used by Wren to mark the division between nave and chancel, but now more often found on the pew appropriated to the Lord Mayor, were banished to the vestry. The sounding board of the pulpit had already disappeared. In short, at the time of its destruction one could hardly plead that the church of St. Michael Wood Street was beautiful; its interest lay largely in old associations, and in what we have been able to learn from it of mediæval London churches and of Sir Christopher Wren's operations as an architect.

We will now consider the Gothic building which had stood upon this site. There were once seven churches in the City dedicated in honour of St. Michael, who was regarded peculiarly as the patron saint of the Church militant. Of these only two now exist, namely St. Michael Cornhill and St. Michael Paternoster Royal. The earliest reference, known at present, to the church in Wood Street dedicated in honour of that saint, is contained in the will of Geoffrey de Ambresbure, goldsmith, proved and enrolled in the Court of Husting, and calendared by Dr. Sharpe under the date 1272-3, whereby the said Geoffrey assigns houses gardens and rents, in the parishes of St. Giles without Cripplegate and St. Michael de Wode Street, for the purpose of founding a chantry, the said rents to be collected by the wardens of the Fraternity of St. Dunstan, from which it has been said that the present Goldsmiths' Company is in some sense descended. The first rector whose name appears in Newcourt's list, but without date, is John de Eppewell; he was followed by William de Brampton, presented in the year 1328. In all probability, however, the foundation of the church was very much earlier. In his Paper on the growth of English parish churches[a] Mr. J. T. Micklethwaite, F.S.A., has expressed the belief that in our large towns there were few parish churches whose sites had not been already occupied in the Saxon period, and he points out

[a] *Archæological Journal*, xxxvii. 364-377.

that the early date of the division into parishes is shown by the state of our old commercial towns. Those which, like London, York, and Norwich, came from Roman times, have many parishes each with its own church, often of small size. Some of the City dedications indicate very great antiquity. I assume, however, that dedications in honour of St. Michael are, as a rule, later than the Conquest; extending as they did from Normandy, where on account of his supposed appearance to St. Aubert, bishop of Avranches, a church had been erected in his honour on what is now called Mont St. Michel, which became a popular place of resort for pilgrims. But, whatever the date of the original church of St. Michael Wood Street, the first documentary evidence forthcoming, which helps us to a knowledge of the mediæval structure, belongs to the latter part of the fourteenth century.

In 6th Richard II., 1382, Robert Lucas, goldsmith, made a will, proved the same year, and enrolled in the Court of Husting, in which he left to his wife Margaret a life interest in his dwelling house in "Hoggen-lane," remainder in trust for sale for pious uses, for the good of his soul and the souls of Isabella his former wife and others.

In the year that this will was drawn up and proved, the widow executed a deed, given in the Appendix, of which the following is a translation:

Know all men that we, Margaret widow of Robert Lucas late citizen and goldsmith, and John Ive rector of the church of St. Michael of Wodestret, executors of the will of the said Robert, by virtue and authority of the said will, and for a sum of money paid to us, have sold to John Curraunt and to John Forster, citizens and goldsmiths, a certain piece of land below the former tenement of the said Robert, next the church of St. Michael, on which place the vestry (or vestibule[a]) of the said church of St. Michael is now situated; which place contains in breadth two yards and a quarter between the church of St. Michael on the south and the hall of the house of the late Robert on the north, and contains in length five yards between the highway of Wodestret on the east and the said house on the west, and in height from the ground to beneath the solar of the said house three yards and a quarter. The before named John Curraunt and John Forster, their heirs and assigns, to have and to hold all the said place of the chief lords of that fee by services therefore due and of right accustomed for ever. In testimony of which fact we have placed our seals to this document. The witnesses thereof being Adam Bamme, Thomas Carleton, Robert Ashcombe, Robert Bright and others. Executed in London on the ninth day of January in the sixth year of the reign of King Richard the Second after the Conquest of England.

[a] Latin *vestiarium*.

Of the above named witnesses, Adam Bamme was sheriff in the year 1382 and mayor in 1390. Henry Bamme, no doubt his near relation, married Margaret, the widow and executrix of Robert Lucas, as appears from deeds enrolled in the Court of Husting, which relate to tenements or a tenement in this parish. John Curraunt and John Forster, both goldsmiths, were evidently intimate friends, for in the will of the latter, dated 6 May, 1406, he leaves certain rent charges to his god-daughter, Joan, daughter of John Curraunt.

In 1388-89 the said John Curraunt or Coraunt executed a will, enrolled at the Court of Husting, in which, after directing that he was to be buried in the church of St. Michael Wood Street, he made bequests to "Sir John Yve,"[a] rector, and to the churchwardens of the same for torches for the high altar, etc. and a devise of the vestry or vestibule built on the north side of the church, which he had lately acquired from the executors of Robert Lucas, goldsmith. To Joan his wife he left all his tenements in the City of London for life, to his son William the reversion of certain shops in the parish of St. Michael, and to his son John the reversion of his dwelling house in the same parish.

More important as regards the fabric are later documents, to which we will now make the following brief reference.

In 1407 Edward Pychard Esquire and Agnes his wife, who had been the wife of John de Worstede late citizen and mercer, let to John Heed citizen and timbermonger, for the life of the said Agnes,

three mansions with solars above and the rest of their appurtenances, situated in Hogen Lane and the parish of St. Michael Wood Street, between the church of St. Michael aforesaid on the east side and the tenement of William Burden goldsmith on the west side, and between Hogen Lane above named on the south side and the ground of the church of St. Michael on the north side, from the Feast of the Lords' birth in the eighth year of the reign of King Henry the fourth, for the payment of twenty six shillings and eight pence sterling at the four principal and usual terms of the City of London in equal portions.

[a] Among deeds in the Court of Husting relating to this parish the name of John Ive or Sir John Ive, rector, frequently appears; from one of them we learn that in 16 Richard II., 1392, John Forster, Robert Buste, and Peter Fikylden handed over to him various messuages for the repair of the church and chancel, and other works of charity, a gift referred to by Stow and Newcourt. There is also reference to this gift on a silver gilt tankard belonging to the parish and now at St. Alban's Wood Street, which has on it the date mark of 1741 and a maker's mark J. F., and is inscribed as follows: "This piece of plate was puchased by the inhabitants of S. Michael Hogan Lane, London, March 1741 out of the estate left them by the Rev^{d} John Ive, John Forster, goldsmith and Peter Fikeldon taylor in y^{e} year 1350." It may be observed that the inscription is inaccurate in more than one particular.

A copy of this indenture is in the Appendix; the original is in the Guildhall Library. I have to thank the authorities there for calling my attention to it.

In the year 1422 a deed was executed, which no doubt referred to part of this property. By it Agnes, widow of Edward Pychard and formerly wife of John Worstede, mercer, together with John Worstede, son of the said John, disposed of a house in "Hoggenlane" to John Broun, saddler. It is described in the deed as

> All that tenement with its appurtenances, which is situated in the parish of St. Michael, between the church of St. Michael on the east and the house of John Biernes and of Benedicta his wife on the west, and the house pertaining to the rector of the said church and the burial ground on the north, and the lane called Hoggen-lane on the south.

An extract from the original is given in the Appendix.

A few months afterwards John Broun made his will, which was not proved until 1429-30, and of which the following is a translated epitome:

> In the name of God, Amen. On the 18th day of October in the year of our Lord 1422, in the first year of King Henry VI., I John Broun, citizen and saddler, being of sound mind and good memory, thus dispose by will of my lands and tenements in London and their appurtenances. I commend my soul to Almighty God, and I wish my body to be buried in the great churchyard of St. Paul's Cathedral before the cross, where beneath a marble slab lie the bodies of my late wife Katherine and of my son Henry. Item, I leave to Master Robert Fitzhugh rector of the church of St. Michael in Hoggenlane and to the custodians of the goods and work of this church, and to four parishioners of this church for the time being, all that vacant piece of ground with its appurtenances belonging to me, in the parish of St. Michael, between the said church of St. Michael on the east, and the house of John Biernes goldsmith, and of Benedicta his wife on the west side, and the house of the rector and the burial ground of the said church on the north side, and the lane called Hoggenlane on the south side; on which piece of vacant ground stood *a house lately acquired by me from Agnes Pychard and others, which was then lately built, and which I have of late totally destroyed for the purposes of the enlargement of the said church towards the west and the adding of a belfry.* Further, as a contribution towards the cost of the said enlargement I leave the sum of ten pounds sterling and the sixteen pounds which Thomas Lovell gentleman owes me.

A copy of the original document is also given in the Appendix.

In the Calendar of Wills enrolled at the Court of Husting we have reference at various times to the foundation of eight chantries in the church of St. Michael, the earliest in 1289 and the latest in 1449. The following two chapels are mentioned:

In the year 1368 Thomas Welforde jun. wills to be buried in the chapel

of the Blessed Mary in this church; and in 1422 William Turnell "wexchaundler" wills to be buried in the chapel of St. John de Bridlyngton.[a] He also leaves to Master Robert FitzHugh the rector, the churchwardens and parishioners, two shops at the corner of Hogginlane on condition that they keep the same in good repair and maintain a lamp burning day and night before the high cross in the said church.

Stow, in 1598, after discussing the question whether Wood Street was so called because the houses in it were built of wood, or from "the name of some builder or owner thereof," describes the church as "a proper thing lately well repaired," and in Strype's edition of *Stow*, we are told that it was repaired and beautified in 1620, at the charge of the parishioners. The illustration from Agas's Plan of London (fig. 3), drawn towards the end of the sixteenth century, cannot

Fig. 3. Churches of St. Michael Wood Street and St. Mary Staining. From Agas's Plan of London.

be considered accurate as regards the details of the church. Still, no doubt, it shows the character of it more or less, and it is besides of interest from the facts it tells us about the immediate neighbourhood. We have seen that in 1422 there was a rectory and burial ground immediately to the north; although in 1693, as appears in Newcourt's *Repertorium*,[b] the churchwardens affirmed that there was no parsonage before the Fire nor glebe that ever they heard of.

Turning now to a consideration of the mediæval remains which existed until the final destruction of the church in 1897-98. Portions of these remains had always

[a] St. John of Bridlington was a canon of the Austin Priory of Bridlington in Yorkshire; he became Prior there, died in 1379, and was canonised.

[b] Vol i. 496.

been more or less apparent. Thus a water-colour elevation done after the completion of the modern spire, and here reproduced (fig. 4), shows a pointed window with fifteenth century tracery on the south side of the tower, latterly blocked up as to the upper part, while the lower portion was converted into what looked like an ordinary square window, serving to light the vestry, a panelled apartment

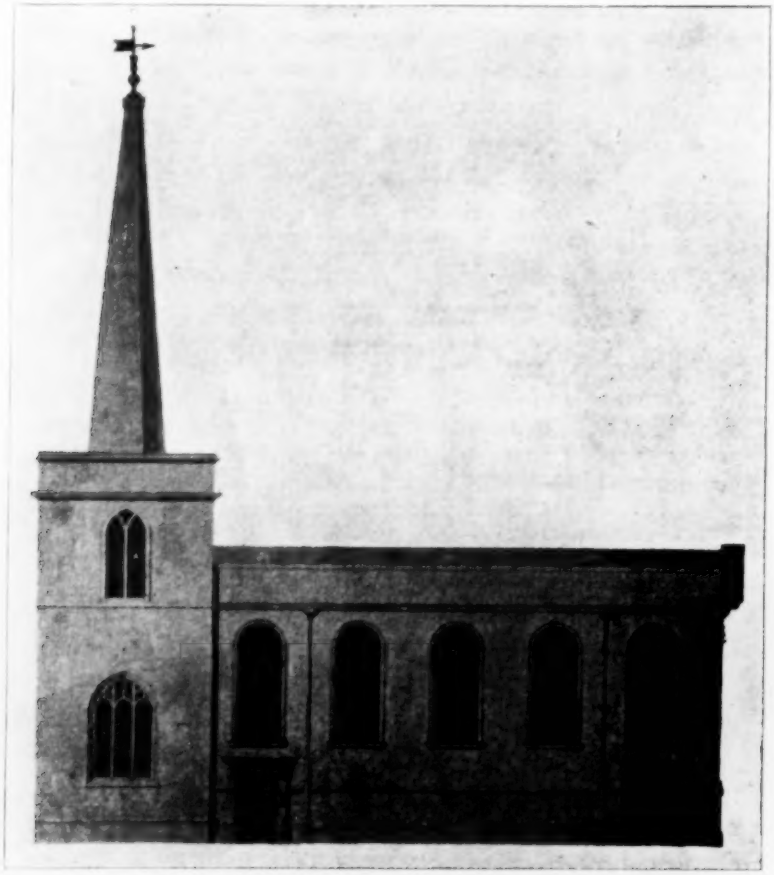


Fig. 4. Church of St. Michael Wood Street. From a water-colour drawing by of early nineteenth century date.

which, as we have seen, occupied the ground floor of the tower. Again, the top of the pointed north tower-arch was visible from the gallery in the tower above the vestry and there was a little turret staircase at the north-west angle of the tower, entered from the nave through a Reigate-stone doorway with fifteenth century mouldings (fig. 5). On passing through this doorway and ascending by the

TOWER ARCHES OF THE DESTROYED CHURCH OF ST. MICHAEL, WOOD STREET, LONDON.

Published by the Society of Antiquaries of London, 1902.

spiral staircase one found that the mediæval masonry ended within three or four feet of the belfry floor level,[a] and the building was carried up in brick, evidently Wren's addition after the Fire. In his brick superstructure he had placed pointed windows, perhaps rough imitations of those which had existed before. The mediæval or lower part of the staircase had been lighted by three little quatrefoil windows opening into the church. They still remained, but were blocked up.

When the building was being pulled down it was seen that the lower portion

Fig. 5. Church of St. Michael Wood Street. Doorway to turret staircase. From a drawing by A. Powell.

of the tower was wholly Gothic. The most perfect piece was the engaged arch on the western side of the tower, which forms a conspicuous object in the accompanying illustration (Plate XIII.) from a photograph kindly contributed by our late Treasurer, Dr. Edwin Freshfield. Here also are shown the north and south arches

[a] There were two bells. The smaller one, which appeared ancient, had no inscription; diameter at the mouth 27 inches. The other was made by Thomas Mears & Son, 1806. In 1708 there were four bells in the tower.

of the tower; the latter containing the square vestry window which filled the lower part of the space previously occupied by the Gothic window. To the west of the northern arch are the quatrefoil openings of the turret staircase. The eastern tower arch appears, as far as one can judge, to have been entirely blocked by Wren, but in 1831 the upper part of the wall was opened into the church, and a small gallery formed over the vestry, a round-headed arch being inserted. It was, perhaps, not until then that the old arch was destroyed, except just enough of it to show its former existence. As can be seen by their general character, and by their mouldings, these Gothic remains were of the early fifteenth century; thus they coincide with the documentary evidence of the date of building of the tower. Much of Wren's south and east walls were formed of re-used stones from the old church. There was ancient masonry at the east end of the north wall up to 2 feet or 3 feet above the wainscotting, which was, I think, about 8 feet high. Embedded in the south wall near the tower, among other fragments not in their original positions, was an oblong piece of stone of considerable size with three quatrefoil openings, now in the Guildhall Museum; the use to which it had been put is, I think, doubtful, it may have belonged to a gallery; but others can form their own opinions from the accompanying view of it (fig. 6). The portions of the walling, not of old material, which dated from Wren's time, were of brick. The foundations of the church seemed to be generally mediæval.

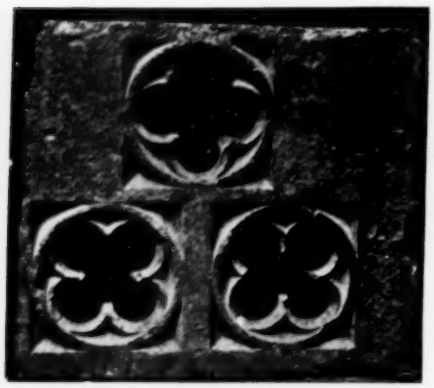


Fig. 6. Moulded stonework from the church of St. Michael Wood Street, London. Now in the Guildhall Museum.

Some encaustic tiles, the majority of which are now in the Guildhall Museum, were found beneath the floor level. They appear to date from the fifteenth century. At the base of the tower were many fragments of coloured glass and of the lead-work in which it was fitted. These belong to the fourteenth century; neither glass nor lead appears to be injured by fire. One of the quarries, part of an ornamental border, has on it the leopard of England; Mr. W. H. St. John Hope has one precisely similar, dug up at Watton Priory, Yorkshire.

On the excavation of the ground within the walls, one found, as is invariably the case in old city churches, that the number of burials there had been enormous;

much of the soil had been dug up to make room for brick vaults. About 15 feet from the north wall and about 20 feet from the east end and 6 feet below the surface there was a stone coffin lying east and west. It seemed of a plain character and I could see no inscription, but it was a good deal injured; there was a cavity at one end to fit the head. Perhaps it is now in the Guildhall Museum, but unfortunately as yet no printed catalogue of the objects contained there is forthcoming. Nearer the south wall, at about the same distance from the east end, I was told that there was a foundation of chalk or clunch at a

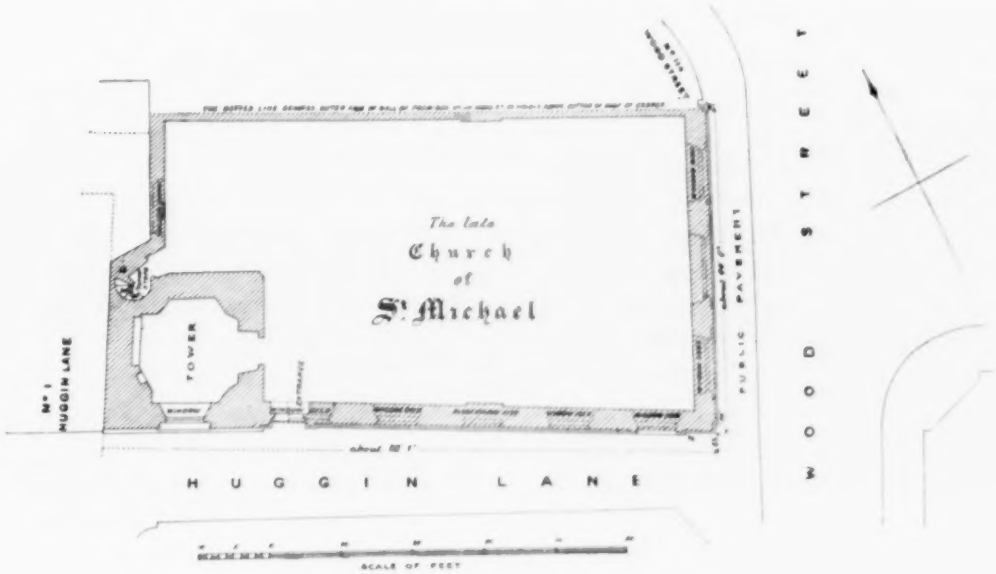


Fig. 7. Plan of the church of St. Michael Wood Street, London.

similar level. But by far the most important foundations were those of the tower, also of soft white stone, which were from five to six feet thick and went down about twelve feet. There was also an irregular piece of foundation in the nave not quite as far west as the tower, and about half way between it and the north wall.

Let us consider what lesson can be learnt from these remains and from the documentary evidence. Apart from the fact that, as we have seen, the foundations before the Great Fire were apparently the same as those of Wren's church, it is unlikely that it ever extended further south, as Huggin Lane is still quite a narrow passage. The same remark applies with less certainty to the east end,

which was always limited by Wood Street, although that thoroughfare in quite early times may have been much narrower. The foundations of the north side were partly at least mediæval. At the west end we have also old foundations, and there is the evidence of John Broun's will, drawn up in 1422, which gives the approximate date of the building of the church tower, and of the lengthening of the church at the west end. Until that date it may only have extended as far as the remains of the old foundations towards the west already mentioned.

The ground plan of the church immediately before the Fire was, I believe, identical with that of Wren's church, although there may have been some subsidiary building on the north side, for we know that John Coraunt's vestibule was here in the fourteenth century. On looking at a copy of the ground plan made for the sale by auction on 21st July, 1897[a] (fig. 7), it is clear that St. Michael's followed the usual lines of a City church of secondary importance, which, as was the case elsewhere, had completed its architectural development in the fifteenth century; a nave having a square east end, with no chancel arch, but with one aisle extending as far east as the nave, and a tower at the south-west angle, its arches opening into the nave and aisle. It may be presumed that the aisle was on the south side, and that it was of the same breadth as the tower which opened into it. In that case it would have had four bays.[b]

Two facts appear at first sight to throw doubts on the suggestion, but they can both be explained. Strype in his edition of Stow, after mentioning the repair of this church in 1620, goes on to say that "in the year 1627 the parishioners made a new door—through the head of the north isle, being the chancel end, into Wood Street; where till then it had only one door in the middle of the south aisle, standing in Huggin Lane." This may be thought to imply a nave and two aisles, but I believe that Strype merely refers to an arbitrary division into alleys or passages, as Hatton must have done in his *New View of London* (1708), when, in writing of Wren's church, he mentions three aisles, although structurally it was without aisles. The second difficulty is that on digging up the soil within the area of the church no bases or foundations of pillars were found, marking the division of the aisle from the nave. To this I reply that they had disappeared either at Wren's rebuilding or subsequently, that the shape of the church, while

[a] The church and freehold were sold by auction by Messrs. Fox & Bousfield at the Mart, Tokenhouse Yard, by order of the Ecclesiastical Commissioners. The estate, containing an area of 3,700 superficial feet, realized £31,500.

[b] With Mr. W. R. Lethaby I studied the church of St. Michael Wood Street while in course of demolition, and I thank him for his valuable help.

too square for a nave without aisles, would not admit of more than one aisle, and the position of the tower indicates that it was on the south side.

If the conclusion arrived at be correct, the arrangement of St. Michael's Wood Street, with nave aisle and tower, was very similar to that of St. Martin's Outwich, which escaped the Great Fire; but, after suffering great damage from the Cornhill Fire of 1765, was taken down in 1796. Previous to its destruction an account of it, with a ground plan, was written by Wilkinson, who afterwards published *Londina Illustrata*. The total length of St. Martin's Outwich was 66 feet, breadth 33 feet, and it was divided into a nave and a south aisle with tower at the south-west angle. The external length of St. Michael's from the east end to the west side of the tower was 88 feet, and the breadth about 44 feet, and it seems to have had one more bay.

More than one of Wren's existing churches has a nave and one aisle with tower at the west end; St. Margaret Pattens, for instance, and St. Laurence Jewry. The former has a north aisle with tower at the north-west angle, while Allhallows the Great, now destroyed, was a parallelogram with a north aisle broken in the centre by a tower. Of simple apartments without aisles there are several examples. That curious church, St. Catherine Cree, completed in 1630, has at the end of the south aisle the lower stage of a tower built in 1504, and completely independent of the aisle arcade.

It may be of interest to note that, besides St. Catherine Cree, the following City churches have western towers which in part at least are mediæval, the buildings being otherwise of later date; of course they are as a rule very much "restored:" St. Andrew Holborn, St. Ann and St. Agnes Aldersgate, St. Bartholomew-the-Less, St. Mary Aldermary, St. Sepulchre (which has also a beautiful south porch of the fifteenth century), and St. Alphege London Wall. The Gothic fragment in the last named church formed the base of the church tower of Elsing Hospital, which was dedicated in honour of St. Mary. The Gothic tower of Allhallows Staining remains, but the more modern body of the church has been destroyed.

Soon after the destruction of St. Michael Wood Street, Wren's church of St. Michael Bassishaw was also pulled down (fig. 8). As had been anticipated, the lower part of the tower at the west end of the nave was found to date from the end of the fifteenth century, and it had against its west side a holy water stoup of late Gothic design. There were rudely arched stone foundations under the south aisle. At the east end of the south aisle was the arched entrance to the vault of Sir John Gresham, Lord Mayor in 1547-48, who died in 1554. He was brother of Sir

Richard, uncle of Sir Thomas, and ancestor of the Leveson-Gowers of Titsey. No vault remained on either side of this archway. Inside the church, traces of at least two buried floor levels came to light, with fine encaustic tiles *in situ*. These are mostly, I believe, in the Guildhall Museum; among them is one with that design so common on encaustic tiles, the arms of Clare. A tile with the same design, from St. Matthew's Friday Street is figured in the *Proceedings of the London and Middlesex Archæological Society.*[a] Under the church, resting on the original soil, were a few fragments of Roman pottery. An interesting paper on the subject of the discoveries at St. Michael Bassishaw was recently communicated to the London and Middlesex Archæological Society by Mr. F. C. Eeles, who also very kindly copied out for me the inventories of the church plate and valuables at St. Michael Wood Street and St. Michael Bassishaw, taken in the reign of King Edward VI.; the former is printed in the Appendix. A communion cup of this reign belongs to the parish of St. Michael Wood Street.

Fig. 8. Church of St. Michael Bassishaw.
From a water-colour drawing by P. Norman, 1899.

Before closing this Paper I will venture to make a few remarks on subsidiary matters connected with the church and parish of St. Michael Wood Street. Anxious to get all the information possible about Wren's rebuilding I looked up the churchwardens' accounts, now in the Guildhall Library, but found that there was a gap in them at the time of the Great Fire, and that very little was said about the actual structure. Various entries suggest that for some years a good deal of the old church was left standing. Thus in 1669-70 there is an item of 1s. 8d. "for mending the church doore and key thereof." The same year a meeting took

[a] Vol. iii. 381.

place to discuss the question of joining the parish with that of St. John Zachary, but this project was abandoned, the parish of St. John Zachary being united with that of St. Anne and St. Agnes, while the neighbouring parish of St. Mary Staining was associated with St. Michael's. Shortly afterwards there was a meeting at the famous "Swan with Two Necks" in Lad Lane, on the site of which is Messrs. Chaplin and Horne's receiving office. In 1670-71 a considerable quantity of stone, lead, and rubbish of various kinds was sold. The sum of 10s. 6d. was spent, probably on liquid refreshment, when "Esquire Harvey" presented the parish with £100. In 1671 there was the considerable payment of £15 15s. "for a dinner for Dr. Wren and other charges," and in 1679 a similar sum was ordered "to be paid to Sir Christopher Wren for building the Church."

With regard to the monuments. There was here one of the many memorial inscriptions to Queen Elizabeth. Stow mentions among others a monument to the father of his friend William Lambarde, the historian of Kent, whose descendants still flourish in the neighbourhood of Sevenoaks. This disappeared in the Great Fire. In the sixteenth and seventeenth centuries an important family here was that of the Harveys. Against the north wall of the church, not far from the east end, but attached to brick and not to the mediæval portion, was a good marble tablet, saved from the old church, to "William Harvie, citizen and grocer of London and deputy to the alderman of the ward of Cripplegate within, buried 20th March 1597, aged 68 years." He had three wives. His eldest son, Robert Harvey, some time comptroller of the customs, who resided in Old Jewry, was buried here 9th November, 1608, and is duly noticed on the tablet. Close to it on the same wall was another monument, to the memory of William Harvey, son of Robert, who "fined for Alderman," and died in 1677. This was the gentleman who gave £100 towards the rebuilding of the church, about which sum there was a dispute with the neighbouring parish of St. Mary Staining. Hugh Harvey, of the fourth generation, was also buried here. The Harvey monuments were moved to the church of St. Alban Wood Street, to which parish this was united. There, already, was a monument to Benjamin Harvey, Esq., "major to the Yellow Regiment of the Trained Bands," who died in 1684; by his last will he gave the white marble font at St. Alban's. Perhaps some reference should here be made to Stow's oft-repeated anecdote that the embalmed head of James IV. of Scotland, slain at Flodden, after being with the body for years at Shene Monastery was "hewn off" by workmen "for their foolish pleasure," and eventually buried at St. Michael's Wood Street. We cannot test the truth of this; perhaps it is needless to say that after the destruction, when the whole of the site was dug up to a depth of many feet, no such head came to light.

Thanks to Dr. Reginald Sharpe and the City authorities an admirable calendar has been printed of the wills enrolled at the Court of Husting. There are, however, similarly enrolled, a vast number of deeds, which at present are only calendared in manuscript by the same skilful hand. Of these, many relate to the parish of St. Michael Wood Street; I have already quoted from one or two and will briefly refer to a few others.

In 26 Edward I., 1298, a deed between Thomas de Morthon and Joan his wife, on the one part, and Nicholas de Halleweford and Alice his wife, on the other, relates to a tenement called "Stonhus" in Englone Lane, afterwards Maiden Lane and now Gresham Street West, an indication of the rarity of such structures.

In 7 Richard II., 1384, there is a quit claim of a tenement called "le Blakehalle" in this parish, and in 1389 it is again mentioned, also in 1410, when it is conveyed to William Sevenoke and others. William Sevenoke was mayor in 1418.

In 1416 John Norman's name appears in a deed. Perhaps John Norman, sheriff in 1443 and mayor in 1453, was a descendant of his.

Attached to a deed of 1435, as also to the important will of John Broun, given in our appendix, appears the name of John Carpenter, common clerk of the City, an intimate friend of Richard Whittington. He was the man to whom we owe the famous compilation entitled *Liber Albus*, and he left estates in the City for educational purposes. From this benefaction the school called the City of London School was endowed, its first building on the site of Honey Lane Market being opened in 1837. Among the men of mark who have been educated at this school are H. H. Asquith and C. T. Ritchie, one a former, the other a present Cabinet Minister. In 1883 the school was removed to the Thames Embankment.

From three documents of the year 1495 it appears that Sir William Boleyn, knight, owned property in this parish. He was of Blickling, Norfolk, son of Sir Geoffrey, Lord Mayor in 1463, and grandfather of Queen Anne Boleyn.

A name interesting to Etonians is that of Benedict Brocas, gentleman, which occurs in a deed of 1510. He must have belonged to the family holding the hereditary mastership of the Royal Buckhounds, which is remembered by the open space called the Brocas with its "Brocas Clump," overlooking the Thames at Eton. To them considerable portions of Windsor and Eton once belonged.

In a deed of 1545 mention is made of a tenement called "le Spleyde Egle." This house is also named in the will of Richard Feild, stationer, 1624.

In these Husting deeds there are quaint names of trades and occupations. We have already had "timbermonger." In 1364 Robert Payn is described as a

"fuster," said to be equivalent to joiner. John Rowne, "coffrer," is mentioned in 1455, John Mathewe, "valet of the King's chamber," in 1505; William Hore de Southwark, "mynstrell," in 4 and 5 Philip and Mary; and in 1562 Thomas Morgan, youngest son of Morgan Philipp, alias Morgan Wolfe, "late goldsmith and late one of the sewers of the King's chamber," has his name attached to a deed. Another odd office is that of Henry Deacon, "serjeant of the Queen's plumbers," which occurs in 1569. Of course there are many goldsmiths, Goldsmiths' Hall and the goldsmiths' quarter being in this neighbourhood.

Stow thinks that Huggin Lane was called after one Hugan, and Mr. Joseph Jacobs, in a paper on the London Jewry at the time of the expulsion of the Jews in 1290, advances the theory that it is named after the important Jewish family of Hagin, of whom he gives a pedigree. He places their house in Wood Street opposite St. Michael's Church, and says that they owned a great deal of property hereabouts. However, in a deed of 1362, Huggin Lane is called simply Hogge Lane. In various documents of rather later time, Lad Lane, now incorporated in Gresham Street, is called Ladel Lane. This perhaps shows the derivation, from its shape, and would be a name of similar character to Bow Lane and Crooked Lane.

The rectory of St. Michael Wood Street was before the Dissolution in the gift of the Abbots of St. Albans. In the reign of Queen Elizabeth the advowson passed into the hands of trustees on behalf of the parish. Until the confiscation of City Parish Estates, which took place not many years ago, the parish possessed several houses near the church; Mr. F. Hollingworth, an authority on this subject, thinks that one of them stood on the site of the Rectory. Property in Wood Street which had belonged to the parish, I believe since the earlier part of the fifteenth century, has been absorbed into the premises of Messrs. J. and R. Morley, where the great hosiery business is carried on to which Samuel Morley, the politician, belonged.

Perhaps it is worth while to record that a large and handsome beadle's staff, formerly at this church and now at St. Alban's Wood Street, is surmounted by a figure of St. Michael, and has the date 1744, the names of the then churchwardens, and the motto, *Deum time Regem honora*. These beadles' staves, as Mr. E. H. Freshfield has pointed out, were in a sense the outward signs of the authority exercised over the parish by the local officers, in the same way that the maces of the Lord Mayor were the outward sign of the Corporation. Staves were borne by the parochial authorities at least as early as the reign of Queen Elizabeth; but the earliest now existing in the City appears to be one at St. Sepulchre's with the date 1677.

APPENDIX.

Deed of 6th Richard II. 1382; Husting Roll, 111 (101).

Sciant presentes et futuri quod nos Margareta que fui uxor Roberti Lucas nuper civis aurifabri Londoñ et Johannes Ive Rector ecclesie Sancti Michaelis de Wodestret Londoñ executores testamenti predicti Roberti virtute et auctoritate testamenti predicti concessimus et pro quadam summa pecunie nobis pre manibus soluta ad ultimam voluntatem ejusdem Roberti perficiendam vendidimus et hac presenti carta nostra confirmavimus Johanni Curraunt et Johanni Forster civibus et aurifabris Londoñ quandam placeam terre infra tenementum quondam predicti Roberti juxta ecclesiam Sancti Michaelis predictam super quam placeam modo situatur vestiarium ecclesie predicte que quedam [*sic*] placea continet in latitudine duas virgas et unum quarterium unius virge inter ecclesiam Sancti Michaelis predictam ex parte australi et aulam tenementi nuper predicti Roberti ex parte boriali et continet in longitudine quinque virgas inter vicum regium de Wodestret ex parte orientali et predictum tenementum nuper predicti Roberti ex parte occidentali et in altitudine a terra subtus solarium tenementi predicti tres virgas et unum quarterium unius virge Habendum et tenendum totam predictam placeam prefatis Johanni Curraunt et Johanni Forster heredibus et assignatis suis de capitalibus dominis feodi illius per servicia inde debita et de jure consueta imperpetuum. In cujus rei testimonium huic presenti carte sigilla nostra apposuimus. Hiis testibus Adam [*sic*] Bamme, Thoma Carleton, Roberto Asshcombe, Roberto Bright et aliis. Datum Londoñ nono die Januarii anno regni Regis Ricardi secundi post conquestum Anglie sexto.

Deed of 8th Henry IV. 1407, deposited in the Guildhall Library.

MS. 518.—Hec indentura facta inter Edwardum Pychard Armigerum et Agnetem uxorem eius que fuit uxor Johannis de Worstede quondam Civis et merceri London. ex parte una et Johannem Heed Civem et Tymbermonger Civitatis predicte ex parte altera testatur quod predicti Edwardus et Agnes uxor ejus una cum assensu et voluntate concesserunt dimiserunt et ad firmam tradiderunt prefato Johanni Heed tres mansiones cum Solario

superedificato et ceteris suis pertinentiis situatas in Hoggynlane in parochia sancti michaelis in Wodestreet london videlicet inter ecclesiam sancti michaelis predictam ex parte orientali et tenementum Willelmi Burden aurifabri ex parte occidentali et inter Hoggynlane prenominatum ex parte australi et terram ecclesie sancti michaelis predicte ex parte aquilonali Habendum et tenendum predictas tres mansiones cum solario superedificato et ceteris suis pertinentibus antedictis prefato Johanni Heed et assignatis suis a Festo natalis Domini Anno regni Regis Henrici quarti post conquestum octavo usque ad totam vitam predicte Agnetis Reddendumin de annuatim prefatis Edwardo et Agneti aut alteri eorum vel eorum certo attornato viginti sex solidos et octo denarios sterlingorum ad quatuor anni terminos principales et in civitate London. usuales per equales porciones. Et presens Johannes Heed et assignati sui predictas tres mansiones cum solario superedificato et suis pertinentiis predictis bene et competenter sustentabunt ac contra ventum et pluviam in omnibus necessariis manutenebunt necnon pavimentum predictarum trium mansionum in quanto ad ipsum Johannem pertinet custodient sumptibus eorum propriis et expensis quotiens necesse fuerit durante termino supradicto et eas in fine termini sui sursum reddent et deliberabunt in adeo bono statu vel meliori prout illas receperunt igni alieno et nimia tempestate duntaxat exceptis. Et predicti Edwardus et Agnes heredes et executores sui prefatum Johannem Heed et assignatos suos de omnibus aliis redditibus oneribus et serviciis predictis tribus mansionibus cum suis pertinentiis spectantibus seu supervenientibus ultra reparacionem earundem simul cum pavimento prenominato vita predicte Agnetis perdurante acquietabunt et defendent. Et si predictus redditus viginti sex solidorum et octo denariorum per unum mensem ultra aliquem terminum predictum quo solvi debeat in parte vel in toto aretro fuerit insolutis vel si predicte tres mansiones cum suis pertinentiis prenominatis non fuerint sustentate manutente et custodite ut predictum est extunc bene licebit prefatis Edwardo et Agneti et assignatis suis in predictas mansiones cum suis pertinentiis et in quamlibet parcellam earundem intrare et distringere districcionesque captas licite apportare abducere et retinere quousque tam de arreragiis dicti redditus quam de reparacione predictarum mansionum eis plenarie fuerit satisfactum et persolutum. Et si sufficiens districcio ibidem non inveniatur pro arreragiis predictis extunc bene licebit prefatis Edwardo et Agneti heredibus et assignatis suis in predictas tres mansiones cum suis pertinentiis prenominatis reintrare et illas in eorum pristino statu retinere rehabere et possidere dictumque Johannem Heed et quoscumque suos inde penitus expellere et amovere hac indentura in aliquo non obstante. Et predicti Edwardus et Agnes predictas tres mansiones cum solario superedificato et suis pertinentiis predictis prefato Johanni Heed et assignatis suis forma ut supra durante vita predicte Agnetis contra omnes gentes warantizabunt per presentes. In cujus rei testimonium partes predictas hiis indenturis sigilla sua alternatim apposuerunt. Datum London. in Festo et anno supradictis.

Endorsed:

Pychard his & his wives Lease of 3 houses in Hogen Lane to John Heed.
Another endorsement above and of later date has been erased.

Extract from Deed of 10th Henry V. 1422. Roll 150 (3).

Agnes Pychard and John Worstede to John Broun :—Totum illud tenementum cum suis pertineciis quod situatum est in parochia Sancti Michaelis in Hoggenlane Londoñ videlicet inter ecclesiam Sancti Michaelis predictam ex parte orientali et tenementum Johannis Biernes et Benedicte uxoris ejus ex parte occidentali et tenementum pertinens Rectori dicte ecclesie Sancti Michaelis et cimiterium ejusdem ecclesie ex parte boriali et venellam vocatam Hoggenlane ex parte Australi.

Will of John Broun, saddler, 18th Oct. 1st Henry VI. 1422, deposited in the Guildhall Library and enrolled in the Court of Husting. Roll 158 (32).

In Dei nomine. Amen. Decimo octavo Mensis Octobris Anno Domini millesimo quadringentesimo vicesimo secundo et anno regni Regis Henrici sexti post conquestum primo. Ego Johannes Broun Civis et Sellarius Londinensis sanus mentis et bonæ memorie facio ordino et constituo presens testamentum meum de terris et tenementis meis cum pertinentibus que habeo in civitate Londinensi in hunc modum. Imprimis lego et commendo animam meam Deo omnipotenti beateque Marie Virgini matri sue et omnibus sanctis ejus corpusque meum ad sepeliendum in magno cimeterio Ecclesie Sancti Pauli Londinensis coram crucem ibidem ubi corpora Katherine nuper uxoris mee et Henrici filii mei sub quadam petra marmorea requiescunt humata. Item lego et volo quod expense mee funerales fiant secundum discretionem executorum meorum prout in alio testamento meo de bonis et catallis meis mobilibus volui et legavi. Item do et lego Magistro Roberto fitzHugh Rectori ecclesie Sancti Michaelis in Hoggen Lane London et custodibus bonorum et operis ejusdem ecclesie ac quatuor parochianis etiam ejusdem ecclesie pro tempore existenti totam illam meam vacuam placeam terre cum pertinentibus quam habeo jacentem in parochia Sancti Michaelis in Hoggen Lane London inter predictam ecclesiam Sancti Michaelis ex parte orientali et tenementum Johannis Biernes aurifabri et Benedicte uxoris sue ex parte occidentali et tenementum pertinentem Rectori et Cimeterium dicte ecclesie Sancti Michaelis ex parte boreali et venellam vocatam Hoggen Lane ex parte australi in qua quidem dicta vacua placea terre totum illud tenementum cum pertinentibus quod nuper habui ex dimissione et feoffamento Agnetis Pychard nuper uxoris Edward Pychard et quondam uxoris Johannis Worstede quondam civis et merceri Londinensis Johannis Worstede filii et heredis ipsius Johannis Worstede merceri Ricardi Osbarn Johannis Carpenter Junioris et Johannis Clerk

Groceri civium Londinensium prout in quadam carta per ipsos inde mihi confecta lecta et irrotulata in Hustengo Londinensi de placitis terre tento die Lune proximo post festum Sancti Benedicti Abbatis anno regni Regis Henrici quinti post conquestum decimo plenius apparet nuper edificatum fuit et jam nuper per me totaliter est prostratum et abinde penitus remotum ad ibidem illam eandem ecclesiam versus occidentem elargandam et de novo fundandam edificandam et construendam una cum quodam campanili etiam ibidem. Habendum et tenendum totam predictam vacue placeam terre cum pertinentibus ut prefertur prefatis Magistro Roberto fitzHugh Rectori dicte ecclesie Sancti Michaelis et bonorum ac operis ejusdem ecclesie custodibus et parochianis ac eorum successoribus qui pro tempore fuerint in perpetuum de capitularibus dominis feodi illius per servitia inde debita et de jure consueta ad ibidem in super et supra eandem vacuam placeam terre cum pertinentiis predictam ecclesiam Sancti Michaelis una cum campanili versus occidentem tam in longitudine quam latitudine ad eorum proprium libitum et liberam voluntatem elargandam de novo fundandam edificandam fabricandam et construendam et hujus elargationis fundationis edificationis fabrice et constructionis ut prefertur fiendi .x. libras sterlingorum et illas .xvj. libras per Robertum Lovell Armigerum mihi debitas in dicto testamento meo de bonis meis et catallis mobilibus legavi ut ibidem plene liquet. Hujus autem testamenti mei Johannem Bagworth Johannem Sawyer Cives et Sellarios Londinenses Johannem Nassh de Wykeham in comitatu Kancie et Johannem Nassh apprenticium meum meos executores facio ordino et constituo per presentes. In cujus rei testimonium huic presenti testamento meo sigillum meum apposui Datum Londini die et anno predictis.

Probatum est hoc testamentum coram nobis officialibus domini archidiaconi Londini decimo kalendas Novembris anno Domini infrascripto et per nos tunc pronunciatum pro eodem et commissa est administracio omnium bonorum defunctum infrascriptum et ipsius testamentum concernen̄ Johanni Bagworth Johanni Sawyer et Johanni Nassh apprenticio executoribus interius nominatis juratis primitus in forma juris et admissa per eosdem facultate committend consimilem administracionem hujusmodi bonarum Johanni Nassh de Wykeham executori interius nominato cum venerit et onus hujusmodi subire voluerit nobis specialiter reservata In cujus rei testimonium sigillum officii nostri presentibus apposuimus Datum Londini die et anno Domini supradictis.

Istud testamentum probatum proclamatum et irrotulatum fuit in Hustengo London̄ de placitis terre tento die Lune proximo ante festum Sancti Valentini martiris Anno regni Regis Henrici sexti post conquestum octavo.

J. Carpenter.

Inventory of Goods at St. Michael Wood Street, 6th Edward VI.

(Public Record Office, Exch. Q. R. Miscellanea, Church Goods 4/3.)

(Indented parchment roll 6⅞ inches broad.)

The certificat of Thomas Wattes . . . . . .
Medley chirchwardyns of the paryshe chirche of S . . . . . .
yn huggyn lane of london made to the charge to . . . . . .
right honorable S^r^ Rycharde Dobby^e^ Knyght lorde [mayor]
of london and other the kynges comissioners assigned for the sum . . . . . .
of all the chirche goodȩ w^t^in the citie of london delyvered vpp the xxiij^th^ daye of July yn the Syxt yere of the Reign of o^r^ sov̄aigne lorde kynge Edwarde the Syxt.

In primis to the ffirste artycle conteyned in ther commission they certyfre that yn the ffirst yere of the Reigne of our Soveraigne lorde the kinge that now ys Robert crowas and Guy reade were then chirchewardyns

Item to the Second article conteyned yn the saide com̄ission concernyng all suche goodȩ plate Juellȩ vestmentes Bellȩ and other ornamentȩ now belongyng and remaynyng severally yn the saide paryshe chirche or ellȩ where / hereafter severally and ptyculerly appereth.

In p̄mis a grete comunyon cuppe w^t^ a paten gylt.

Item a smalle comunyon cuppe parcell gylt.

Item a crysmatory of Sylver remaynyng yn the handes of maistres S[awkyns]

Item ij pyxes of Sylver and gylt remaynyng in the handes of the parson and the . . . kepynge of maistres Sawkyns . . . . . .

Item a cope a vestment a cusshen and a cloth of velvett opon cloth of golde.

Item a cope of velvett olde with garters.

Item a cope and a vestment of white damaske.

Item iiij Awbes and iij surplyses.

Item ij table clothes one of Dyaper the other of playne clothe.

Item ij towellȩ of Dyaper.

Item ij olde herseclothes.

Item x bokes of the Servys.

Item a byble and a peradphrase.

Item a payre of organs.

Item iij Bellȩ.

Item a Saunce bell.

Item ij olde chestȩ.

Item a paynted cloth that was over the high Awter.

Item a latten bason in the parsons kepynge.

Item a corporas clothe.

Item a comunyon table.

Item ij newe ffourmes & iiij fote paces.

Item a byble yn latten in the psons kepynge.

Item a cope a vestment and ij deacons of grene velvett enbrodered w^{t} lybardes hedd^{e} and sterres beynge now in the custodye of master John lambert Alderman.

Item ij tyn candylstykk^{e}.

Item to the thirde artycle comprysed yn the saide com̃ission concernynge any Inventory delyvered to the late bysshopp of londons officers they knowe of none But as towchyng what goodes plate Juell^{e} and other ornament^{e} as dyd belonge to the saide paryshe chirche the firste yere of the Reigne of our saide Soveraigne lorde the kynge that nowe ys hereafter ptyculerly and Severally doth appere

First a crosse plated w^{t} Sylver and gylt.

Item iiij buttons for the sacrement clothe.

Item ij chalasys gylt.

Item a chalys parcell gylt.

Item ij clothes for the Sacrement.

Item a cloth steyned to hange before the rode.

Item a xj corporas caces & certen clothes to them.

Item a vestment with flowers.

Item a vestment w^{t} a longe strype of golde.

Item a vestment w^{t} a Raynbowe.

Item a vestment of russett velvett.

Item a cope w^{t} flowers of golde and olde tynsew.

Item ij deacons w^{t} the raynbowe.

Item a olde vestment eaten w^{t} Ratt^{e}.

Item ij curtens of red Sylke.

Item ij white curtens.

Item ij curtens of Sylke.

Item ij awter clothes of white and grene sylke.

Item a Sute of white copes and vestment^{e}.

Item a vestment and ij deacons of grene velvett.

Item ij awter clothes of white and grene damaske.

Item a vestment of blak.

Item a cope of blak Satten.

Item ij copes and a vestment of red sylke.

Item a cope wrought w^{t} golde.

Item a vestment for lent.

Item a vestment w^{t} katheryn wheles.

Item a olde vestment.

Item a cope of red velvet w^t^ flowers.
Item ij copes of white fustyan.
Item vj olde vestmentꝯ of Dornex.
Item a canape clothe.
Item a cope ij deacons and a awter cloth of velvett upon clothe of golde.
Item certen paynted clothes
Item iiij banners.
Item a myter.
Item certen latten candylstykꝯ that were in the Roode lofte.
Item ij tyn candylstykꝯ.
Item a crysmatory of Sylver.
Item ij pyxes of Sylver.
Item a cope a vestment a cusshen and a herse clothe of velvet upon cloth of golde.
Item a cope of olde velvett w^t^ garters.
Item a cope and a vestment of white damaske.
Item iiij awbes of lynnen.
Item iiij Surplyses.
Item ij table clothes one of dyaper and the other playne clothe.
Item ij towellꝯ of Dyaper.
Item ij olde herse clothes.
Item a byble yn ynglyshe.
Item a payer of organs.
Item ij olde chestꝯ.
Item a latten bason.
Item a byble yn latten.
Item a cope a vestment and ij deacons of grene velvett enbrodered with lyberdꝯ heddꝯ and sterres.

Item to the fourthe artycle comprysed yn the saide cõmission concernynge what goodꝯ Juellꝯ or ornamentꝯ hath ben solde to whome and by whome and what use the money Receyved hath byn conv̄ted unto and yn whose handes the rest remayneth hereafter dothe appere.

Item Solde yn the firste yere of the reigne of o^r^ saide Soveraigne lorde the kynge that now ys by Robert browne and Guy wade then chirchwardeyns.

Item Receyved for ccxxv^li^ weight of latten candylstickꝯ at xviij^s^ the C. Summa xlj^s^ iiij^d^

Item Solde the Seconde yere of the reigne of o^r^ said sov̄raigne lorde by Guy wade and Thomas walker then chirchwardens.

Item R for ij gylt chalasys weyinge xxxix onces at v^s^ viij^d^ the once xj^li^ xij^d^

Item R for a chalys parcell gylt weyinge xvij oncꝯ q̃ter at v^s^ y^e^ once iiij^li^ vj^s^ vij^d^

Item Solde the fourthe yere of the reigne of our saide Soveraigne lorde the kynge that now ys by Adam Gardener and walter Sawkyns then chirchwardens all these pcellꝯ folowynge

Item Solde to Thomas Bonde a sacrement cloth iij^{s}
Item more to hym a cope with flowers of golde and olde tynsen xx^{s}
Item more to hym ij Awter clothes of white and grene—xxx^{s}
Item more to hym ij Awter clothes of damaske xiij^{s}
Item Solde to water Sawkyns a cloth that hange before the Rode [*no amount given*].
Item more to hym a myter of white fustyan and a sacrement clothe all x^{s}
Item more to hym a vestment of russett velvet xiiij^{s}
Item more to hym ij wihte curtens iiij^{s}
Item more to hym ij olde vestmentꝯ of dornex iiij^{s} iiij^{d}
Item Solde to Robert mather xi corporas caces x^{s}
Item more to hym a blak vestment iiij^{s}
Item more to hym ij copes and a vestment of [blak sylke *struck through*] red sylke xxxiiij^{s}
Item more to hym a cope w^{t} crownes of golde xxvj^{s} viij^{d}
Item Solde to John Abell a vestment with flowers xxvij^{s}
Item more to hym a olde vestment eaten with Rattes iij^{s} iiij^{d}
Item more to hym ij curtens of red sylke iiij^{s}
Item more to hym iiij white damaske copes and the vestmentꝯ xlvj^{s} viij^{d}
Item more to hym a vestment w^{t} the kateryn wheles iiij^{s}
Item more to hym a canape cloth xiiij^{s}
Item more to hym a cope ij deacons and a awter cloth xij^{li} vj^{s} viij^{d}
Item more to hym iiij banners xv^{s}
Item Solde to Raffe Hille a vestment with a longe strype of golde xv^{s} vj^{d}
Item more to hym a vestment with the Raynebowe xxxj^{s}
Item more to hym ij curtens of Sylke x^{s} x^{d}
Item more to hym a cope of red velvett with flowers xvij^{s}
Item Solde to John Medley two deacons with the Raynebowe xx^{s}
Item more to hym a vestment and ij deacons of grene velvett iij^{li} vj^{s} viij^{d}
Item more to hym a cope of blak Satten xxx^{s}
Item more to hym iiij olde vestmentꝯ vij^{s} viij^{d}
Item more to hym olde paynted clothes xvj^{s}
Item Solde to Thomas Walker a vestment for lent iiij^{s} vj^{d}
Item more to hym a vestment of red dornykꝯ iiij^{s}
Item Solde to Thomas Rede a C and xviij^{li} of latten candylstykꝯ xviij^{s} vj^{d}
Item Solde to the clerke two white fustyan copes v^{s}
Item Solde to Adam Gardner olde lynnen cloth and olde tymber xij^{s}
Item more to hym xxij oncꝫ of gylt plate at vj^{s} viij^{d} the once vij^{li} vj^{s} viij^{d}
Item more to hym one once & a halffe of white plate at v^{s} vj^{d} the once viij^{s} iij^{d}
Item more to hym for old Iron xvij^{s} iij^{d}
Item more to hym two candylstykꝯ . . [*cut off.*]

Summa totalis that the plate and other parcellꝯ aforesaide solde amounteth to lxv^{li}. xiij^{s} v^{d}

Whereof spent and layde out to thuse of the saide paryshe chirche yn reparacoñs and other necessaries thereunto apperteynynge yn the first yere of the reigne of our saide soveraigne lorde the kynge that nowe ys by Robert Browne and Guy Wade then chirchwardeyns xiiij^{li} xvj^{s} v^{d}

Also spent and layde out in the Seconde yere of the reigne by Guy Wade and Thomas Walker then chirchwardeyns yn necessary charges as ys aforesaide xxj^{li} ix^{s} x^{d}

Also spent and layde out in the thirde yere of the reigne of o^{r} saide Soveraigne lorde by Thomas Walker and Adam Gardener then chirchwardeyns for lyke charges x^{li} v^{s} vj^{d}

Also spent and layde out yn the fourthe yere of the reigne of o^{r} saide Soveraigne lorde by Adam Gardener and Water Sawkyns then chirchwardeyns for lyke charges xix^{li} xj^{s} v^{d}

Also spent and layde out yn the fifte yere of the reign of o^{r} said Soveraigne lorde aforesaide by Water Sawkyns and Thomas Wattes then chirchwardeyns for lyke necessaries xiij^{li}

Item for drawynge & ingrosynge this accounte x^{s}

Memorand that there remayneth yn the handes of Adam Gardener haberdassher late chirchwarden of the chirche money lviij^{li} iiij^{s} which money he had yn his handes at bothe the Falles lviij^{li} iiij^{s}

Debtę owynge by the saide chirche.

Item to George Medley mercer for money by hym lent to the chirche lxxxxvj^{li}

John lee parishesoñ there

per me Robart brownell.

SARACENIC GOBLET OF ENAMELLED GLASS IN THE BRITISH MUSEUM (FULL SIZE).

Published by the Society of Antiquaries of London, 1902.

VII.—*On a Saracenic Goblet of Enamelled Glass of mediæval date.* *By* Charles Hercules Read, *Esq., Secretary.*

Read 27th February, 1902.

During the past five or six years a number of interesting examples of enamelled glass have been sent to Europe from various sites in the nearer East, the principal localities near which they are said to have been found being Damascus, a spot in the neighbourhood of Aleppo, and at Koos and Fostat in Egypt.

One of these, the subject of the present paper, has come into my hands for the British Museum collection, through the liberality of Miss Alice de Rothschild. It is figured in colours in the accompanying Plate XIV. of the size of the original.

It is of clear white glass, rather full of bubbles. It is decorated with enamel colours, heightened with gilding; the ornament consisting of two medallions with scrolls in gold on a blue ground, separating two conventional palm trees, the trunks being formed of a line of triangles; in the spaces are eight rosettes. The enamel colours, red, white, pale emerald green, and sapphire blue, are chiefly applied to the exterior of the cup, but the blue backgrounds of the medallions are applied to the inside of the glass, the gilding only being outside. It measures 5 inches (12·7 cm.) in height, and the diameter at the mouth is 3·1 inches (8·00 cm.) The Syrian vendor stated that it came from excavations near Aleppo, a story rendered credible by the ancient history of that city.

The form of this beautiful vessel presents no unusual features, being simple and of the outline commonly found in the glass goblets of the Saracens. But one peculiarity in its manufacture calls for a detailed notice. This may be seen in the coloured plate, but is more clearly shown in the section (fig. 1), viz. that the goblet is provided with a foot rim which has been separately made and fixed to the base.

SARACENIC GOBLET OF ENAMELLED GLASS IN THE BRITISH MUSEUM (FULL SIZE).

VII.—*On a Saracenic Goblet of Enamelled Glass of medieval date.* By Charles Hercules Read, *Esq., Secretary.*

Read 27th February, 1902

During the past five or six years a number of interesting examples of enamelled glass have been sent to Europe from various sites in the nearer East, the principal localities near which they are said to have been found being Damascus, a spot in the neighbourhood of Aleppo, and at Koos and Fostat in Egypt.

One of these, the subject of the present paper, has come into my hands for the British Museum collection, through the liberality of Miss Alice de Rothschild. It is figured in colours in the accompanying Plate XIV. of the size of the original.

It is of clear white glass, rather full of bubbles. It is decorated with enamel colours, heightened with gilding; the ornament consisting of two medallions with scrolls in gold on a blue ground, separating two conventional palm trees, the trunks being formed of a line of triangles; in the spaces are eight rosettes. The enamel colours, red, white, pale emerald green, and sapphire blue, are chiefly applied to the exterior of the cup, but the blue backgrounds of the medallions are applied to the inside of the glass, the gilding only being outside. It measures 5 inches (12·7 cm.) in height, and the diameter at the mouth is 3·1 inches (8·00 cm.) The Syrian vendor stated that it came from excavations near Aleppo, a story rendered credible by the ancient history of that city.

The form of this beautiful vessel presents no unusual features, being simple and of the outline commonly found in the glass goblets of the Saracens. But one peculiarity in its manufacture calls for a detailed notice. This may be seen in the coloured plate, but is more clearly shown in the section (fig. 1), viz. that the goblet is provided with a foot rim which has been separately made and fixed to the base.

The bottom of the vessel itself is pushed up inwards, in the fashion to be found in a champagne bottle, but it has a peculiar feature in that the actual centre, the apex of the cone thus formed, is reflexed downwards, apparently leaving a small hole through the bottom of the glass, which is only closed by the fixing on of the added foot. This feature appears to be common in these oriental goblets, and, so far as my experience goes, is not found in any of European make.

In view of the belief held by some, that most of the so-called Arab mosque lamps and such vessels as the one now in question are not the products of the East, but are of Venetian make, and were only exported to the East from that centre, it may not be amiss to put together some of the reasons for holding the contrary opinion, in favour of their eastern origin.

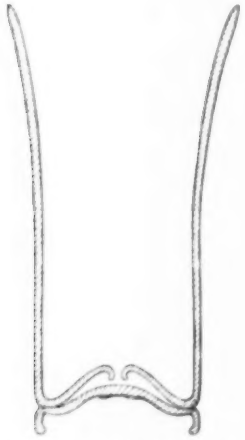


Fig. 1. Section of Saracenic goblet of enamelled glass. (½ linear.)

A certain amount of evidence has been set out by the late Mr. Nesbitt in his *Catalogue of Glass Vessels* and in the earlier *Catalogue of the Slade Collection*. With regard to Aleppo, whence comes the glass now before us, it is abundantly clear that in the fifteenth century of our era, and probably much earlier also, a very considerable manufacture of glass vessels was carried on there. In the Sefer Nameh, the account of the travels of Nassiri Khosrau in Syria, Egypt, etc. from A.D. 1035-1042, mention is often made of glass factories, particularly at Cairo and Tyre, and some of these are quoted by Mr. Nesbitt. But an extremely valuable translation of the work was published by Monsieur Charles Schefer in 1881, and the notes added by this distinguished orientalist greatly increase the usefulness of his translation. In his note on the description of Tripoli, after mentioning the prosperous condition of the town and the fertility of the country in the eleventh and twelfth centuries, he says "Outre les fabriques de papier dont parle Nassiri Khosrau, Tripoli possédait, comme toutes les villes de la côte, des verreries. Dans le traité que Boémond VI., prince d'Antioch et Comte de Tripoli conclut le 1er juin 1277 avec J. Contarini doge de Venise nous trouvons la stipulation suivante 'Et si Venicien trait verre brizé de la ville il est tenuz de payer le dhime'" (p. 42 n). In Tyre, as might be expected, the manufacture of glass was carried on to a great extent in mediæval times. William of Tyre (A.D. 1130-1188) speaks of the glass wares of the city that were exported to all lands, and Benjamin of Tudela (d. 1173) also refers to the beauty of the glass vessels of Tyre. Thus

there would be nothing surprising in finding a glass factory in a city of such importance as was Aleppo at the same period. Nassiri, however, does not specifically mention glass, though he enlarges on the trade and importance of the city, comparing it in size with Balkh. A writer in the earlier years of the fifteenth century, however, one Hafiz Abrou of Herat, is more precise. He states "Une industrie particulière à Haleb est celle de la verrerie. Nulle part ailleurs, dans le monde entier, on ne voit de plus beaux objets en verre. Quand on entre dans le bazar où on les vend, on ne peut se déterminer à en sortir, tant on est séduit par la beauté des vases qui sont decorés avec une élégance et un gout merveilleux. Les verreries d'Haleb sont transportées dans tous les pays pour être offertes en présent." Such a description, even if due allowance be made for the florid exuberance of oriental statement, can safely be taken as an indication that the productions of Aleppo surpassed those of any town known to the writer, who was both a scholar and a traveller. All these writers, it can scarcely be doubted, were describing what they had themselves seen, and if William of Tyre may be suspected of overpraising the wares of his metropolis, a native of Herat would have no such tendency at Aleppo. Many other native writers might be quoted in support of the manufacture of glass in the cities under Saracen rule on the Mediterranean countries; but enough has been cited to prove that there is no improbability in attributing a highly decorative specimen to one or other of the Syrian factories. This probabilty is further increased by the discovery, apparently in the same excavations at Damascus and Aleppo, of traces of pottery kilns with remains of glazed wares ornamented in a style fully equal in artistic perfection to the best products of the Persian kilns in the thirteenth and fourteenth centuries. The decorative motives found on the pottery bear the same relation to those of the glass that is found in other parts of the nearer East, *e.g.* Egypt and Persia itself.

Gustav Schmoranz in his fine volume on oriental glass[a] has also come to the conclusion that Syria (principally Aleppo and Damascus) was the home of these glasses, unless, indeed, they were made in Persia itself, and in a somewhat original manner claims a monopoly of the "discovery," as he calls it. As an opinion, if not a discovery, it was certainly held by others; and that the art was derived from Persia, if not actually the work of Persians, is becoming every day more probable. The dissertation on the general question of the origin of the art given by Schmoranz is of considerable interest, as is also the account of the chemical

[a] *Old Oriental Gilt and Enamelled Glass Vessels.* Fol. Vienna and London, 1899.

analysis of the glass and colours made by Dr. F. Linke, one result of the latter being to demonstrate that cobalt is never found in the enamel of old oriental glass. A special chapter is, however, devoted to goblets, and descriptions, figures, and sections are given of the principal pieces known to Mr. Schmoranz. While it is his opinion that no enamelled glass was made as early as the twelfth century, he places the bulk of the goblets in the beginning of the following one, an attribution that is borne out both by their history and by the more familiar style of the European cases in which some of them are preserved. That in the Museum at Douai, called the Goblet of the Eight Priests, was bequeathed in the fourteenth century by one Marguerite Mallet as an endowment for that number of priests, and its fine embossed leather case was probably made for it at that time. A second in the museum at Chartres is known as the Cup of Charles the Great, and others in the Green Vaults at Dresden, the Löwenburg near Cassel,[a] as well as the well-known Luck of Edenhall,[b] all have the same general form, and are ornamented

[a] The cup in the Art collections in the Löwenburg at Wilhelmshöhe, near Cassel, resembles more nearly that in the Waddesdon Bequest than do any of the other known goblets of this class. The decoration consists of convivial scenes forming a broad band around it, and the figures have at their sides representations of similar cups. It is figured by Schmoranz (fig. 27 on p. 31), and a portion of the decoration is shown on his Plate XXXIII. From the figure it would seem fairly certain that the construction of the foot is the same as that of the subject of this paper, shown in my fig. 1. Schmoranz gives a section of it among those on p. 41 of his work, but I suspect he has omitted to notice the double thickness of the foot, a peculiarity that I have found to be invariable in this class of oriental glass.

[b] The Luck of Edenhall is the subject of a small volume of verse, entitled "The Luck of Edenhall. A modern lay of the olden day. By the Rev. Beilby Porteus, Vicar of Edenhall." Carlisle, 1856. The frontispiece of this volume is a coloured figure of a cup "from a drawing by the Rev. B. Porteus." There can be little doubt, however, that it is taken, not from the cup, but from Lysons's figure, to be shortly mentioned. Mr. Porteus in his notes gives what was no doubt the popular theory, that the glass was of Venetian make and intended for a chalice.

The plate in Lysons's *Magna Britannia* (Cumberland, p. ccix) shows not only the glass, but also the leather case and the sacred monogram on the top, the two first of the real size. The height of the cup itself appears to be $6\frac{3}{4}$ inches (17·1 cm.). The colours employed in the decoration are blue, white, yellow, and a little red. Lysons's description is as follows:

"The curious ancient glass vessel called the *Luck of Edenhall*, on the preservation of which, according to popular superstition, the prosperity of that house depends, is well known from the Duke of Wharton's ballad, which begins,

> 'God prosper long from being broke
> The *Luck of Edenhall*.'

"It is of a green coloured glass ornamented with foliage, and of different colours in enamel:

either with an inscribed band, usually a pious formula, or with formal ornaments. The fine cup in a silver mount in the Waddesdon Bequest in the British Museum is more richly decorated than most of the others, but neither the inscription nor the groups upon it give clear indication either of its date or origin. An interesting glass of the same kind, but with the simplest ornament, is in the museum of Silesian antiquities at Breslau, and is known as St. Hedwig's glass, an attribution shared by several other early glass vessels. In outline this example more nearly approaches the subject of this paper than any of those cited. One of the Paris

Fig. 2. Enamelled glass goblet in the British Museum. (½ linear.)

Fig. 3. Section of glass goblet (fig. 2) in the British Museum. (½ linear.)

antiquity dealers recently brought me another cup, which, like that of Charles the Great, has an inscribed band as the only decoration. This he claims to have been made for the great Saladin (1137-1192) on the somewhat slender evidence that the motto inscribed upon it is found upon the coins of that monarch. Although Mr. Schmoranz's statement that no enamelled glasses were made as early as the

the case of leather, in which it is kept, is ornamented with scrolls of vine leaves, and on the top are the letters I h c: from which it seems probable that this vessel was originally designed for sacred uses. From the style of the ornaments, it seems to be of as early an age as the beginning of the fifteenth century, probably earlier."

The leaves on the case may conceivably be intended as vine leaves, but they are simple trefoils of a conventional kind, and it is improbable that there is any reference to a sacred use of the glass intended either in the floral decoration or in the use of the sacred monogram.

[a] Read, *Catalogue of the Waddesdon Bequest*, No. 53 and Plate XIV.

twelfth century may be regarded as rather dogmatic, yet it is undoubtedly a fact that all our evidence is in favour of the thirteenth century as the starting point for enamelled glass of this kind. The analogy of style with the dated metal work of the time and the small amount of European evidence that we have, both point to approximately that date.

I have thought it worth while to illustrate another small goblet in the British Museum collection, reproduced in fig. 2. This charming little vessel is stated to have been found at Koft in Egypt. It is $4\frac{1}{4}$ inches (10·8 cm.) in height and $2\frac{7}{8}$ inches (7·00 cm.) wide at the mouth. It is of clear yellowish glass, much thicker and more horny in texture than that shown in the coloured plate. The only decoration consists of a number of fishes, drawn in red outline with great freedom and skill, each being rubbed over with gilding. This piece has the same peculiar formation of the bottom that was described in Miss Alice de Rothschild's cup, viz. the raised boss inside with apparently a hole in the centre, and an added foot (fig. 3).

Mr. Schmoranz has given a number of sections of the goblet, as well as of the other objects he describes, but I feel sure that he has omitted to notice this peculiarity, and that his sections therefore lack one of the special characters of the oriental method. He gives, for instance (in his fig. 1), a perspective view of a fine bowl in the Musée de Cluny, showing the base inside, where the central hole is clearly visible, but in his section of the same vessel no indication of this is shown.

This oversight, if it be one, is to be regretted, for where we have so little evidence of any kind for the origin of a most interesting and beautiful class of works of art, any technical point may be of value.

With a view of dispelling any doubt that may exist as to the true oriental origin of the glass vessels with eastern decoration, I have reproduced in the accompanying figures (4 and 6) two of the earliest cups of the same kind of European, and doubtless Venetian, make. The forms, it will be seen, are practically the same as those of the eastern cups already described, and the date of their manufacture is probably within a few decades of their oriental prototypes. Simple as the form is, I think it not improbable that the European is a copy of the oriental original, for of these latter there must have been many scattered among the wealthier families of Europe, and with more probability in Venice than elsewhere.

The first of these goblets (fig. 4) was formerly in the possession of Mr. Adrian Hope. It is of clear slightly greenish glass, well made, and with but few bubbles.

The edges of the base are rounded and the bottom is pushed inwards, forming a regular cone inside. The decoration is in enamel colours, and consists of a broad band round the middle, on which is represented the Virgin and Child seated between two standing angels, each holding a candlestick; the rest of the space is

Fig. 4. Enamelled glass goblet formerly in the possession of Mr Adrian Hope, now in the British Museum. (¼ linear.)

filled with standing figures of SS. Peter and Paul. The figures are divided by formal plants. On a narrow band above is the inscription in silver, now black:

✠ DNIA (*sic*) MATER · REGIS · ALTISSIMI · ORA ꝑ PA.[a]

The corresponding band below the subject has a formal scroll in green, appearing red by transmitted light. The colours employed are light red, brilliant apple green, cobalt, and white for the faces, the Virgin's throne, etc. The accessories and outlines are in gilding. The back of the inscription, as seen through the

[a] DNIA probably stands for DOMINA.

glass, shows that the silver is laid on a ground of yellow enamel. The height is $7\frac{1}{2}$ inches (19·00 cm.). This fine piece can scarcely be later than the latter half of the thirteenth century. The difference in the make of the foot, which is quite simple and really somewhat unpractical, is distinctly seen in the view of the glass and yet more clearly in the section (fig. 5). A foot rim in the oriental style would not only have made the beaker stand more safely, but could easily have been extended outwards and thus have improved its proportions.[a]

Fig. 5. Section of the glass goblet (fig. 4) formerly in the possession of Mr. Adrian Hope (British Museum). ($\frac{1}{2}$ linear.)

The second of the European beakers, which I have thought of sufficient interest to compare with the eastern examples, has points of resemblance with the foregoing one, as well as differences, and both may prove of value in

[a] It is of interest to state that while this short memoir was in course of preparation a London dealer brought to me two other beakers of this class. I have reason to believe that they were found with the one above mentioned, attributed to Saladin, at Damascus. One of these was even more cylindrical than that shown in the coloured plate, and was covered with a simple vermicular diaper in red, not a very attractive specimen. The other was almost precisely of the proportions of the Venetian goblet just described, with a wide mouth and a small base. Both beakers, however, had the peculiar construction of the foot to which attention has been called in the text.

elucidating the relations of the Venetian and oriental manufacture. It is a beaker of thin glass, light in weight and full of bubbles and imperfections, far less advanced in technical qualities than the one before described (fig. 6). It is painted in enamel colours with three shields of arms, separated by formal plants. Above is a band with the legend in thick white enamel :

✣ ΩAGISTЯ · ALDЯИVANDIИ' ΩИ · FЯCIT

The subject and inscription are bounded by lines of canary yellow and red. The flowers are crudely drawn in white outline, filled in with blue, red, and green.

Fig. 6. Enamelled glass beaker in the British Museum. (½ linear.)

Fig. 7. Section of glass beaker (fig. 6) in the British Museum. (½ linear.)

The shields are heater shaped, with red borders edged with white. The first has *or three stag's horns in fesse azure ;* the second, *argent three keys in fesse gules ;* the third, *per fesse argent and sable, in chief a bar.* The colours are thickly laid on, partly outside the vessel, partly inside. The base is pushed inwards, forming a cone (fig. 7) ; the foot rim is formed of a thread, fixed on with the blowpipe. It is 5⅛ inches in height (13·0 cm.). This piece was formerly in the collection of Herr Gedon of Munich, and was acquired by the Museum in 1876. A comparison of this goblet with the preceding example shows a notable difference in the quality of the glass of which it is made, the latter being far superior in quality. The painting on the other hand, while scarcely showing the same skill, has a marked

affinity in style, as may be seen in the blocks: the modelling of the leaves is more particularly remarkable as having points in common. A peculiar interest, however, attaches to this piece, from the special interest of the inscription as giving the name of a glass maker, or perhaps a glass painter, at this early date, for the period of its production cannot be very distant from that of the other Venetian goblet, viz. some time in the thirteenth century. Who Master Aldrevandini was it is useless to speculate, nor shall we discover him until a proper search is made in the archives of the craft of glass workers at Venice. An examination of the arms, however, has shown that the glass was made to a foreign order, and our Fellow Mr. Max Rosenheim has narrowed the search for the original owner to the province of Suabia, to which two out of the three coats belong. The coat with the three stag's horns belongs, with variations of colour, to no less than six towns in Suabia, as well as to the family of Landtau; a second, that of the three keys, to the family of Spet of the same district. There is thus a fair probability that the beaker belonged to some Suabian of importance.*

Such is the evidence, mainly that of the objects themselves, that I am able to bring before the Society. I claim that it goes some way towards proving the existence in the thirteenth century of a fairly perfect manufacture of glass vessels in Europe, and preferably in Venice, and that, at approximately the same time, there were existing in various flourishing cities of the Mediterranean and the East, under Saracen rule, factories producing craftsmen at least as skilful as those working in Europe. These facts added to certain technical differences between the two products, some of which have been pointed out while others are only to be perceived by comparison or analysis, lead me to think that, even if the fragility of the objects were not in question, that there is a strong case for the home manufacture of such glass articles as the mosque lamps of Egypt and Syria. At the same time, it is something to have put on record the achievements in the same craft of the accomplished workmen of Venice.

Note.—The so-called "three colour process" by which the coloured plate is produced, is an admirable method with limitations; but in reproducing iridescent glass, which literally has the colours of the rainbow, the process can scarcely claim to be more than a paraphrase of the colour effects.

* It is perhaps prudent to state here that I am well aware that there are existing forgeries of this class of glass, some of which I have had the advantage of examining; but I have no doubts of the authenticity of this piece.

VIII.—*The Charters of the Manor of Ropley, Hants.* *By* T. F. Kirby, *Esq.*, *M.A.*, *F.S.A.*, *Local Secretary for Hants.*

Read 13th March, 1902.

The manor of Ropley, like the manor of Meonstoke about which I read a paper in December, 1900,[a] is a made up one. A number of ancient free tenements, holden by suit and service of the bishopric manor of Sutton, were purchased and thrown together between the years 1390 and 1476, and became the college manor of Ropley, the copyholders in which held at the will of the college as they had previously held at the will of the free tenants of the bishop, and attended the court of the college steward as they had previously attended the court of the bishop.[b]

That the manor of Ropley was early recognised as a customary manor of copyholds for lives cannot be doubted. I have a grant by Roger Gerveys (of whom presently) to John atte Putte and Margery his wife, and the heirs of their bodies, remainder to the grantor's right heirs, of a free tenement at Ropley in the manor of Sutton, reserving 6s. yearly rent, and a heriot and relief on the death of a

[a] *Archaeologia*, lvii. 285-294.

[b] The statute *Quia Emptores* was no obstacle to a manor being made up in this way. According to the second resolution in *Melwich and Luter's Case*, 4 Co. Rep. 26, where a lord of a manor hath several ancient freeholds held of his manor, and grants the inheritance of them all to another, so that by such grant they are severed from the manor; yet the grantee may hold courts for the customary tenants and accept surrenders and make admittances and grants. For every manor consisting of freeholders and copyholders hath in effect two courts: the one a court baron for the freeholders, and in this the suitors, *i.e.* the freeholders, are the judges; and the other is a customary court for the copyholders, and in this the steward or the lord of the manor himself is judge. And though in strictness of law after the grant of all the freeholds from the manor it is no longer a manor, because it wants freeholders, yet the grantee may hold such courts for freeholders as the grantor might have done. And though by his own act he cannot have two manors out of one to consist of demesnes and freeholds, yet he may make a customary manor of copyholds, which is what Wykeham did in this case.

tenant, to the bishop of Winchester for the time being. John atte Putte died without issue by Margery; Gerveys sold his remainder to William of Wykeham; and there is a memorandum on the back of the grant to the atte Puttes that at a court held at Ropley on the 14th April, year not mentioned, Margery the widow surrendered her estate in the presence of John Fromond and others. Now Fromond was steward of the college manors from 1408 till his death in 1420.

The manor of Ropley extends into several parishes east of Winchester. Some of the free tenements comprising it, lying in the parishes of Ropley, Medstead, Bighton, Drayton, Bishop's Sutton, and Winnall, near Winchester, Wykeham bought from a family named Gerveys. Another free tenement in Ropley he purchased of one William de Wandelesworth. All these Wykeham settled on his college in 11 Richard II. And in the year 1399 he demised to the college other lands in the parish of Ropley, also parcel of the manor of Bishop's Sutton, which had come into his hands as lord of the manor, probably by escheat or forfeiture, for a term of one hundred years. These freeholds and leaseholds, together with lands at Ropley North Street, and lands in Hattingley and Medstead which were purchased for the college in 35 Henry VI., and lands called Minchins, in the parish of Wield, purchased for the college in 12 and 15 Edward IV., became the college manor of Ropley. The college stood in the shoes of the former owners of the free tenements which comprised it, and their tenants at will, the actual cultivators of the soil, are represented by the copyholders for lives of the present day.

The fact of one of the free tenements incorporated in the manor being leasehold may be attributed to Wykeham's advanced age. In 1381, when he annexed the bishopric estate of Downton, in Wiltshire, to his college, he obtained the consent of the Crown and the Pope to the alienation, and gave an equivalent to his see. All this took time; but in 1399 he was 75 years of age, and probably despaired of living long enough to carry out a similar exchange.

The lease is recited in the deed of confirmation (No. 131) by the prior and convent of St. Swithun, which I exhibit. It is dated 18th April, 1403, three years and a half after the lease. The ancient rents were reserved, so that the see should be no loser: 38s. 2d. rent of assize, and 40s. 7½d. in lieu of chursetts,[a] and all other services and customs at Michaelmas yearly, and the further sum of 1s. 6d. by equal half-yearly payments at the Court of the Manor of Sutton.

The seal is broken, and sewn up with some of the fragments in a silk and woollen pouch.

[a] Church scot or church dues.

1.

3.

2.

5.

4.

7.

6.

J. F. Kell & Son, Photo Engr.

SEALS FROM CHARTERS OF THE MANOR OF ROPLEY, HANTS.

Published by the Society of Antiquaries of London, 1902.

The description of the property in the lease is "six tofts, three yard lands, eight acres of wood, three half yard lands, fifty-eight acres of land and wood, and two parcels of waste in Ropley."

This lease was also confirmed by an *inspeximus* (No. 131A) under the great seal, tested at Westminster 17th July, 4 Henry IV., "pro quadraginta solidis solutis in hanaperio." The seal is that known as "Willis, G.," made for Edward III. in consequence of the Treaty of Bretigny in 1360, with the name **Edwardus** altered to **Henricus**. It is a perfect specimen, and appended to the patent by purple and red silk cords. It is protected by flaps of thick brown serge.

The lease was renewed 9th January, 20 Henry VII., by bishop Foxe, for a term of 99 years, and the renewal was confirmed by prior Sylksted and the convent of St. Swithun under their capitular seal (No. 131B).

The seal of dignity of bishop Foxe in red wax is also appended; but it is unfortunately broken at each end (Plate XV. fig. 1). It has in the centre, under a double canopy, a seated figure of Our Lady and Child, with the Holy Trinity in the supercanopy above. Under pentises on either side are the standing figures of St. Peter and St. Paul. The sinister of two shields is left in base, bearing the bishop's cognizance, a pelican in her piety. The legend is:

[SIGILL]VM RICARDI ✠ | DEI GRIA EPI WINTON.

Bishop Cooper renewed the lease in 31 Elizabeth for a third term, but to the queen, not to the college (No. 131C)[a] in consequence of the restrictions imposed on the leasing powers of bishops by statutes 13 Elizabeth, c. 10, and 18 Elizabeth, c. 12, not disenabling them, in the opinion of Crown lawyers of that day, from granting long leases to the Crown, and the queen was moved to assign the lease to the college by the following memorial (No. 131D).[b]

Certaine Remembrances to induce her Ma^tie the rather to assigne the state of such Lands

[a] The lease has appended to it two seals, that of the bishop and that of the chapter. The bishop's seal is a pointed oval one 3¼ inches long (Plate XV. fig. 2). The device represents Our Lord standing and giving a book inscribed PASCE OVES MEAS to a kneeling figure of St. Peter. Between the figures is a flock of five sheep. Above is a scroll inscribed ITE PREDICATE EVANGELIVM, and over it the Holy Dove descending from a cloud. In base is a large shield encircled by the Garter with the arms of the church of Winchester impaling those of the bishop, *a fess between three pelicans in piety*. The legend is: SIGILLVM THOME COOPERI EPISCO[PI WINTON] 1584. On the back is a small oval counterseal with the bishop's arms, as above, encircled by the Garter (Plate XV. fig. 3).

[b] In one or two other cases about that time the college was not so fortunate, the renewed lease being assigned to a courtier. It may be suspected that the college owed its success in this case to the little value of the property.

as the late Bisshop[a] demised unto her Ma^tie with hope it would please her Highnes to assigne the same to the colledg of Winchester.

The most parte of the land was purchased by William Wickham o^r fownder from the Tenauntes that held it to them and their heirs of the Bisshoprick for fyne certaine: and by reason he died before he could make recompense to the Bisshoprick for the same, he did not convey over to the colledg the ffee simple thereof, but made us an estate by Lease for fowerskore and nynetene yeres (*sic*); which Bisshop Foxe renewed for as many. And so hath the Land remayned in the colledg use ever synce the first foundac̃on.

The land is not much, and rated at the uttermost valew for the Bisshop, and yeldeth to the Bisshoprick farre greater com̃oditie than when it was held by copiehold of inheritance, as at first it was.

Many states have ben graunted of that Land to divers of o^r Tenauntes for Lyves and yeres not yet determined; so as yf their graunts should now be frustrated, a nomber of poore men should be utterlie undone, and the Colledg in danger to suffer great losse for not performing the graunts made unto their Tenauntes.

The Land called the Parke is a small piece of barren ground, so sower and weate, that it yeldeth nothing but birche, woode and heath, and the rest besides the Park is not seaven score acres of as drie and stonie ground as any is in Hampshire, everie where so intermingled with the Landes of the Colledg, that they can hardlie be held by divers Tenauntes without contynual trespassing one and other, besides making more fenses than the Land is worth.

For these respects o^r humble Petic̃on is, it might please her Ma^tie to be as gracious to o^r howse as other her Progenitors have ben before; the Colledg having pcured none other graunt from the Bisshop, but such as have ben usually made unto them ever synce their first foundac̃on.

On the 1st August, 1649, the bishoprick manor of Sutton, including the reversion to this leasehold, was sold by Sir John Wollaston, knt., and others "the Commissioners trusted by severall ordinances of the Lords and Commons assembled in Parliament with the lands and possessions of the late archbishops and bishops for the sale thereof" to Sir John Evelyn, Bart., and he by deed dated 21st September, 1652, sold back the reversion to Chalkhill, Terry, and May, three fellows of the college, for the sum of £50.

In December, 1851, the college assigned the lease, which had been renewed by bishop Sumner for three lives in 1814, to the copyhold tenant, and he enfranchised the property. The six tofts, etc. comprised in the lease were found on that occasion to amount to one hundred and ninety-five acres, which were held by eight copies of Court roll.

To return to the family of Gerveys. Members of it held free tenements in the manor of Sutton in the time of Henry III. I exhibit No. 4, a grant by Henry

[a] Bishop Cooper died in 1594.

Woodlock, bishop of Winchester from 1305 to 1317, to William Gerveis (*sic*) and Cristina his wife, their heirs and assigns, of her first husband's [a] tenement in Ropley, rendering a chief rent of 13s. 4d. per annum, doing suit and service at the bishop's court, and giving 3s. to every new bishop *pro recognitione*, "knowledge money" it is called in other documents, and the same sum to the king on every avoidance of the see. The best cart-horse was seizable as a heriot on the death of either of the granteés, or of any one of their heirs. I set out these reservations as a fair example of the terms on which free tenements in the bishopric manor were held.

The deed has no date. The witnesses, Richard de Tystede,[b] William de Overtone, Thomas de Lemyngtone,[c] Nicholas de Ichene,[d] John de Tycheborne,[e] John de Thuddene,[f] and Hugh de Selerugge,[g] were mostly local people, and were probably free tenants doing suit and service at the Court at which the grant was made.

The bishop's seal of dignity in dark green wax is appended by a parchment strip. It is a pointed oval, $2\frac{3}{4}$ inches long, with the bishop in mass vestments standing under a canopy, with on either side of him the heads of St. Peter and St. Paul in sunk sexfoiled panels. Under St. Peter is the letter ℏ and under St. Paul the ordinal II. Legend:

FRAT' : ℏЄПRICVS : DI : GRA | WIПTOПIЄПSIS ЄPVS.

The counter seal is also a pointed oval $2\frac{3}{8}$ inches long (Plate XV. fig. 4). The device is a three storied panel or niche with (i) at the top, a half-length figure of Our Lady and Child, over (ii) half-length figures of St. Peter and St. Paul, with (iii) two similar half-length figures of bishops below, probably St. Swithun and St. Birinus. In base is bishop Henry kneeling in prayer. The legend is:

SIT : XPO : GRATVS : ℏЄПRICI : POПTIFICATVS.

On the Sunday [h] next after the Purification, 11 Edward II., this William Gerveys and wife settled one of their free tenements. They granted it (No. 15)

[a] Thomas de Manecrofte, whose surname is perpetuated in Great and Little Mancroft fields in the parish of Ropley.

[b] East and West Tisted are neighbouring parishes.

[c] Lymington, a farm in adjoining parish of Medstead.

[d] Itchen Stoke and Itchen Abbas are neighbouring parishes.

[e] Titchborne is an adjoining parish.

[f] Thedden, a place in the north of Alton.

[g] Soldridge, a farm in parish of Medstead.

[h] Deeds were often sealed on Sundays at that period, I suppose because witnesses were easy to get after morning mass.

to one Robert le Butillier,[a] and he regranted it to the settlors for their joint lives and the life of the survivor without impeachment of waste (*ita quod boscum in dictis tenementis existentem licite prosternere, vendere et assartare, vel assartata arrentare possint pro voluntate suâ*), remainder to William their son and the heirs of his body, remainder to Roger his brother and the heirs of his body, remainder to John his brother and the heirs of his body, remainder to the right heirs of William Gerveys.

Fourteen years later, in Michaelmas Term, 5 Edward III., a fine was levied to the above uses, with the addition of a remainder to a daughter named Isabel, who must have come into the world after the settlement.

William, the eldest son, having died without issue, Gerveys in 7 Edward III. granted another free tenement of his in Bighton, Alresford, and Winnall to his eldest surviving son Roger. The grant (No. 19) is dated at Bighton on the Sunday next after St. John Baptist's Day, 7 Edward III.

In 42 Edward III. Roger's eldest son and heir in tail, Andrew Gerveys, sold his life interest in the entailed estate and his reversion to other estates then held by his younger brother William, parson of Bentworth,[b] and by his stepmother Joan for their respective lives to William of Wykeham for a life annuity of £20.

I exhibit the deed of sale (No. 78). The seal is an antique gem, with the encircling legend **Sigillum Andree Gerveys**.

I also exhibit Wykeham's letter of attorney to receive seisin (No. 80). It is dated at Farnham, 18th December, 42 Edward III. The seal is a fair example of his *secretum* in brown wax.

In the following year Wykeham bought up Gerveys's annuity for a hundred marks. I exhibit the release (No. 80) as an example of fine bold writing. It is dated at Lambeth, 14th February, 43 Edward III. The attesting witnesses are Robert de Thorp[c] and John Knyvet,[d] justices; David de Wollore,[e] clerk; Roger de Kirketone,[f] Edmund de Chelreye, and Robert Beleknap, the king's serjeants.

[a] A chief rent of £25 a year was reserved, in order to insure Butillier's regranting the premises.

[b] He died in 1372, as his successor, Nicholas Danvers, was instituted 17th December in that year on the presentation of Sir William Melton, lord of the manor of Bentworth.—Wykeham, *Register*, i. 45.

[c] C. J. Common Pleas, 27th June, 1376, succeeded Wykeham as Chancellor 26th March, 1371; died 29th June, 1372.

[d] Justice of Common Pleas, 30th September, 1361; C. J. King's Bench, 29th October, 1365; Chancellor, 30th June, 1372, to 11th January, 1376-7.

[e] Perhaps of kin to a man of the same name who was Master of the Rolls in 1346; died 1370.

[f] Justice of Common Pleas in 46 Edward III.; died *circa* 1385.

The seal is perfect, circular oval, in red wax, identical with that appended to No. 78.

I exhibit Gerveys's acquittance for the hundred marks. It is dated at London on Thursday after St. Valentine's Day, 43 Edward III. The seal is the same as before.

It must have been, I presume, as a further consideration for this release that Wykeham inserted the name of Andrew Gerveys in the list of benefactors for whom, by Rubric XXIX. of his Statutes for Winchester College, masses were to be said daily in the college chapel.

William, the parson of Bentworth, died in 1372, as we have seen; and in 1376, when the stepmother was dead also, Wykeham conveyed the premises to feoffees of his own by deed dated at Farnham, 12th July, 49 Edward III.

The bishop's *secretum* appended to this deed is nearly perfect.

Sixteen years later, by deed dated 8th June, 15 Richard II., Wykeham made over his purchase to the warden and scholars of his college at Winchester by the description of "two messuages, a toft, three carucates of land, two acres of meadow, thirty acres of pasture, sixty acres of wood, ten pounds rent, and a rent of one pound of cummin, with the appurtenances, in Ropley, Sutton, Bighton, Drayton, Winnall and Medstead." The *secretum*, in red wax, though perfect, is a poor impression.

The warden and scholars' letter of attorney to receive seisin has the same date, and has appended to it a perfect example of their common seal in red wax (Plate XV. fig. 5).

When Wykeham bought the property he bought the live and dead stock as well; and this he now made over to the college by indenture dated on Sunday, the day of St. Simon and Jude, 21 Richard II., testifying that one Henry Knyghth on that day delivered to Augustin Welde, serjeant of Ropley, the live and dead stock on the farm, viz.: 7 horses, 2 of them unfit for work (*debiles*), 17 oxen, 2 bulls, 24 cows, 8 heifers, 8 calves, 3 sows: also 409 tegs (*multones*), 10 rams, 273 ewes, 178 lambs, 8 hoggetts, 4 geese, 24 capons, 1 cock, 6 hens, an iron fastened cart *cum toto apparatu*, viz. 6 collars, 5 pairs of traces, a cart saddle, 2 cart-ropes, and a new cart-ladder, a dung cart and some harness, viz. 6 headstalls, whereof 3 were of leather, 3 threshing sledges (*tribula*), a shovel, a "dung pyke," 5 ploughs, 2 ploughshares, 2 iron coulters, 3 iron "solropes," a winnowing fan, a sieve, 3 ryderones (rudders or screens), a prong, an oak table top with 2 pair of trestles, a "tabel dormond,"[a] 3 forms, a 4 gallon brass pot, an old brass posnet,

[a] A table dormant is a stationary piece of furniture as distinguished from one made of boards laid on trestles. See Chaucer, Gen. Prologue to C. P., 353.

2 vats made out of hogsheads, 2 keves,[a] 3 hogsheads of cider and 60 gallons more, 3 cheese vats, 3 pails, 5 cheese boards, a new "salting trow,"[b] a wooden "tonnel," a tub, an "opstander,"[c] an iron hooped bucket, a well rope, a "knedyng trow," a "molding borde," 8 harrows (*herciæ*), 4 hay racks (reckys[d]), 8 sheep racks, 6 "holryng reckys," 6 gallons of tar to dress sheep, 5 quarters of lime, 3 colhurdels, a 12 gallon tub.

In 50 Edward III. Roger Gerveys released his interest under the entail to Wykeham by deed (No. 94) dated at Bishop's Sutton. I exhibit it for the sake of his seal, which is a small traceried one with a shield charged with *two chevrons*, impaling *fretty and a quarter*.

I exhibit in this connection an indenture (No. 193) testifying that on the 12th of November, 6 Henry IV., Simon Membury, who was Wykeham's treasurer at Wolvesey, delivered to Master John Morys, warden of the new College of St. Mary in the Soke of Winchester, three hampers (*cophini*) containing twenty-seven evidences of title to the lands purchased of Roger Gerveys. Some of these evidences are on the table before us.

Membury's seal is a small one in red wax, bearing what may be a counting board flanked by his initials S M.

After Wykeham's death this Roger Gerveys went about saying that the release was executed by him under duress. Hence the next instrument (No. 104), which is a solemn declaration to the contrary expressed to be made by John de Campeden, archdeacon of Surrey, Thomas Warenner,[e] and John Ketene, precentor of St. Mary's, Southampton, and confirmed by Sir Thomas Skelton and Sir Walter Sandes, knts., John Skillyng and Richard Wallop, justices of the peace, Edward Condray, the High Sheriff, Nicholas Breye, William Overtone, and John Fromond, in the presence of John Letcombe, abbot of Hyde, and Gilbert Foster, mayor of Winchester; but in point of fact executed by John de Campeden only. It bears date at Winchester on the Monday after St. Luke, 6 Henry IV.

The parchment tags remain for nine seals, each inscribed with the name of the declarant, but only the first has had a seal affixed to it (Plate XV. fig. 6). It is a pointed oval in form, and represents St. Andrew holding his cross and a book,

[a] Fr. Cuve.

[b] "Trow" is Hampshire for "trough."

[c] Perhaps a stillion or cask stand.

[d] The open wooden framework or grating over a manger.

[e] Sir Thomas Warenner, knt., who was High Sheriff of Hants in 1394. He married Joan, a granddaughter of Agnes, Wykeham's aunt, and had two sons, Thomas and Reginald, who were scholars of Winchester College in 1394.

standing within an elaborate niche. This is supported by masonry pierced by a round-headed arch, under which kneels John de Campeden. The legend is:

Sigillu : iohis : de : camp[eden··] archidiaconi : sur'.

The ends of the seal are unfortunately broken away.

We hear no more of Roger Gerveys and his grievance, but in 5 Henry V. John Gerveys, who was porter at St. Swithun's priory, and apparently heir in tail of the settlor, brought his action[a] against Warden Thurbern to recover possession of the settled estates. The defendant pleaded a lease (No. 110), which, in anticipation no doubt of John Gervays' claim, he had granted in 1 Henry V. with the consent of the fellows and scholars, of the manor of Ropley, and the possessions of the college in the parishes of Ropley, Bishop's Sutton, New Alresford, Drayton, Bighton, Medstead, and Winnall to Sir Thomas Wykeham, knt.; John Forest, clerk; John Wykeham, rector of Mapleder ham[b]; John Wykeham, rector of Crondall; John Bouke,[c] clerk; John Fromond, Richard Wallop, Henry Keswyk, and Robert Tychefeld for their lives and the life of the longest liver of them, at a peppercorn rent.

[a] The following pedigree is amongst the pleadings in this action:

William Gerveys = Cristina, widow of Thomas de Manecrofte

- William, d. unm. before 9 Ed. III.
- Roger = Alice
  - Andrew, d. s. p.
  - William, *capellanus* of Bentworth, d. s. p. in 1372
  - Maud, d. unm.
  - Cristina = — Tyghale
    - John Tyghale =
      - Roger Gerveys, m. 2ndly, Joan —, and had by her
        1. Isabel, a nun
        2. Roger, m. Bennet —, and d. s. p.
        3. William = Joan Lemyngtone
           - William, d. s. p. before 6 H. V.
           - John, *armiger*, porter of St. Swithun's Priory in 8 H. V.
        4. Nicholas, living in 8 Hen. V. and had issue.
        5. Thomas, d. s. p.
        6. Michael, d. s. p.
      - John Tyghale, living in 8 H. V.
        - John Tyghale
    - William Tyghale, d. s. p.
- John, d. s. p.
- Isabel, d. s. p.

[b] A tithing in the parish of Buriton, near Petersfield.

[c] Warden of New College 1403-1429.

The seal of the college at the foot of this lease is in excellent preservation.

Issue was joined on the question whether the warden was or was not in possession of the lands in question on the 20th April, 6 Henry V., the date of the writ; and a special jury was summoned in the quindene of Trinity to try it, *vij tam milites quam alios liberos et legitimos homines de visu de Suttone et Roppelegh, quorum quilibet habeat centum solidatas terræ tenementorum vel redditûs per annum ad minus.*

These are the names of the panel:

William Brokes.	William Tystede.
William Overtone.	John Hamptone.
Nicholas Beynton.[a]	John Upham.
Richard Tystede.	Edward atte Rych.
John Kyrkeby.	John atte Peke.
Lucas Ponynges.[b]	John Benet of Hursley.[c]
Walter Haywode.	John Goolde.
John Harryes.	John Baloue.
Thomas Wayte.	John Sylvere.

At this stage the action was compromised at the desire of Cardinal Beaufort, who is described as *fundator et patronus dicti collegii* in the deed of compromise, the plaintiff binding himself by a statute merchant to execute a release to the college on being paid £20.

I exhibit the statute merchant (No. 118), which has appended to it an excellent example of the seal provided for recognisances of debtors at Southampton under the statute of Acton Burnell *de Mercatoribus* of 1283 and the *statutum mercatorum* of 1285.

This seal is circular, $1\frac{7}{8}$ inch in diameter, with the bust of the king rising from a walled town, with a leopard on either side the head. The legend is:

S' ЄDWARDI RHЄ6 ANЄ6LÆ PRHDOЄПIDONIB DЄBITOR APVD SVTHT.

On the back is the clerk's seal, which is circular, 1 inch in diameter, with the device of a single masted ship[d] (Plate XV. fig. 7).

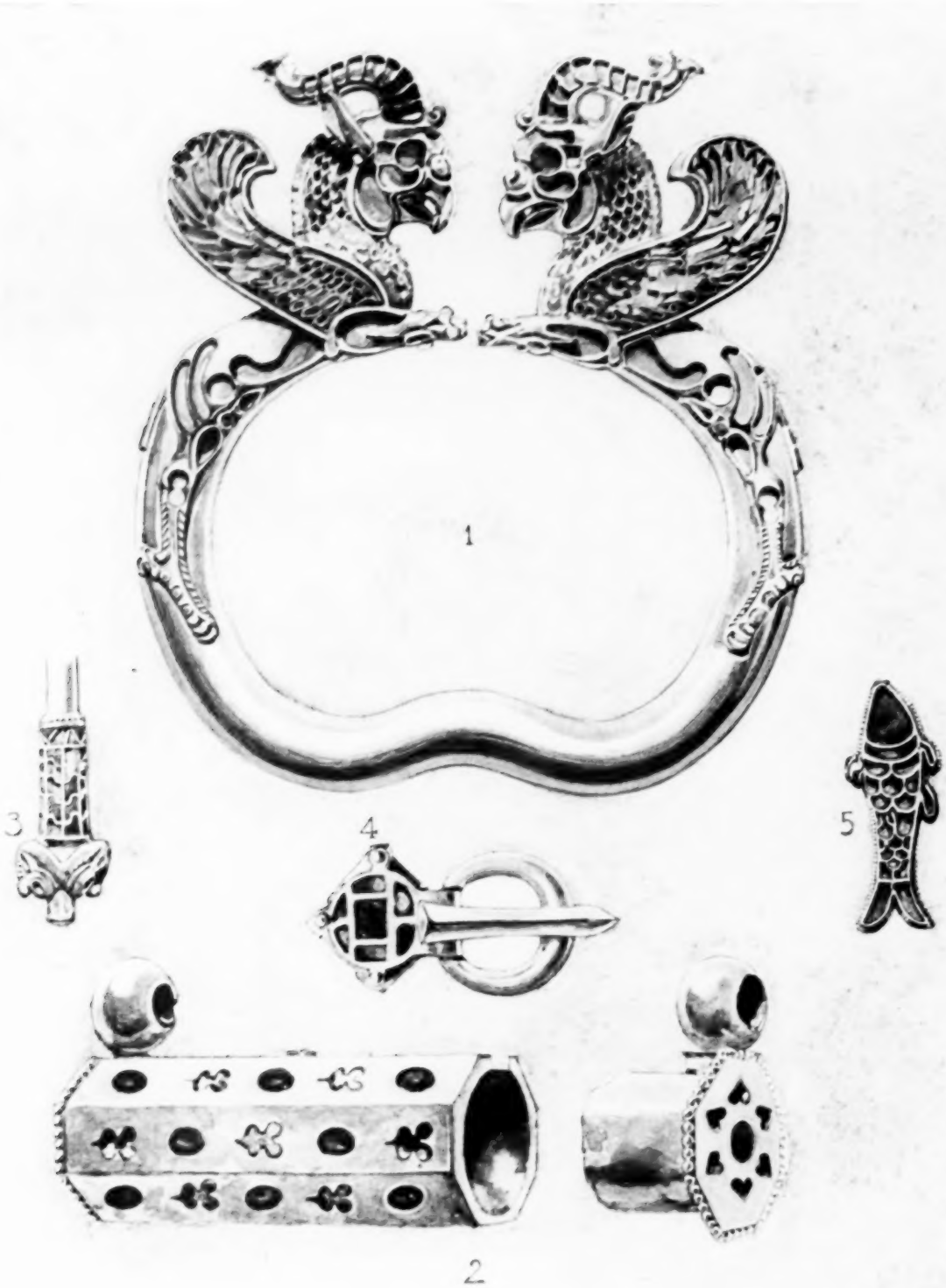
Mr. W. H. St. John Hope has kindly supplied the descriptions of the seals.

[a] Name preserved in "Boyne Wood," South Medstead.

[b] Grandson of Sir Luke de Ponynges, whose will, dated 5th June, 1376, is entered in Wykeham's Register, iii. 143a.

[c] Thus distinguished from a contemporary, John Benet of Botley, a relation of Wykeham.

[d] I may refer here to our late Fellow, Mr. Charles Spencer Perceval's communications on the subject of these seals generally in *Proceedings*, 2d. S. vii. 107, and x. 253, and to Mr. W. H. St. John Hope's notes, *ib.* xv. 61.



INLAID GOLD ORNAMENTS IN THE BRITISH MUSEUM. FULL SIZE.

IX.—*On some points in the History of Tabaid Jewellery.* By O. M. Dalton, *Esq.*, *M.A., F.S.A.*

Read 20th March, 1902

The Early Teutonic jewellery ornamented with garnets and glass pastes, frequently known as *Orfèvrerie Cloisonnée*, has been so extensively discussed that it may appear almost superfluous to draw attention to it once more. But the publication in the following pages of objects now in the British Museum will, it is hoped, supply fresh links in the chain of evidence connecting it with the East; for it is now universally agreed that this kind of jewellery entered Europe from Asia, and it is with examples of early date from that continent that we are here chiefly concerned. The principal aim of this Paper is to make better known the armlet from the Oxus, and the reliquary from Afghanistan reproduced by figures 1 and 2 of the accompanying coloured plate (Plate XVI.). But in considering these objects it has been difficult to avoid speculation as to the origin of the style of ornamentation which they represent. The early date and pronounced Persepolitan style of the armlet bring us nearer to Egypt than anything hitherto discovered in the East, and in view of these facts, we are tempted to revive the question whether the *Cloisonné* jewellery of Central Asia can have been introduced from the banks of the Nile. The opposite theory, which regards this jewellery as indigenous in Asia, has probably the balance of opinion in its favour; but in the present state of our knowledge, its acceptance would appear to involve something of a dilemma. For on this view the great antiquity of the earliest Egyptian jewels in this style would compel us either to prove that their Eastern prototypes were in existence some three thousand years before Christ; or to suppose two independent centres of invention, one in Asia, the other in Africa, thus severing Egypt from all connection with the development of the art on the neighbouring continent. Time may remove the difficulties incident to these

alternatives, but at present neither of them is easy of acceptance. The perfection of the famous inlaid jewels of Dashur (figs. 1 and 1a), which belong to the twelfth dynasty (third millennium, B.C.), would make it necessary to assume from their rude Asiatic forerunners an almost fabulous antiquity. But so far as I am aware, neither Babylonia nor Assyria, Central Asia, or India, have as yet produced anything in this style of so remote a date; and though the early archæology of China is at present so little known that it may have many surprises in store, as matters now stand it is a legitimate inference that the Far East could hardly have exercised an artistic influence towards the West thirty centuries before the beginning of our era. The theory which derives enamelling from Asia, does not involve the same dilemma, because this was not one of the characteristic arts of Ancient Egypt.

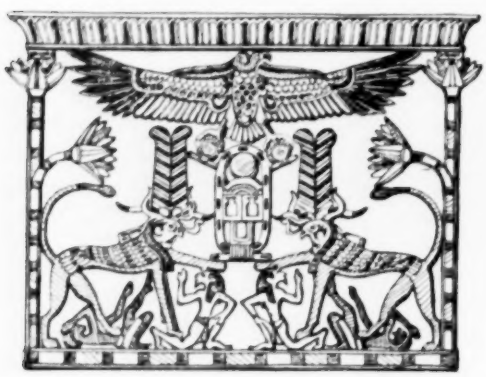


Fig. 1. Inlaid gold *naos* from Dashur. After de Morgan.

Fig. 1a. Inlaid "soul" from Dashur, in the possession of F. G. Hilton-Price, Esq.

It is a matter of common knowledge that brooches, buckles, sword-hilts, rings, and other objects of gold and bronze ornamented with flat slices of stone, usually garnet, or of glass pastes in imitation of it, have been found in great numbers in the cemeteries of the principal Teutonic tribes which succeeded to the inheritance of the Roman Empire. From England they can be traced back through France and Spain, Germany and Scandinavia, Northern Italy and Hungary to Southern Russia and the Caucasus. That the objects found in the countries furthest toward the East are earlier than those from the West is obvious from many indications, among others from the increasing degradation of zoomorphic designs which is apparent as we proceed from the Caucasus toward our own country. It is indeed universally accepted that of all the Teutonic tribes the

Goths were the first to make use of a new style of jewellery, and that they became acquainted with it during their sojourn to the north of the Black Sea from the third to the end of the fourth century A.D. By the close of the fourth century the new fashion had already superseded the enamels of the early Roman Empire, and by the fifth it had spread right across Europe, its presence in Merovingian France being attested by the splendid ornaments discovered in the tomb of Childeric I. (died 481), at Tournai in the middle of the seventeenth century.[a] In our own country, which was among the last to receive the new fashion, this branch of the goldsmith's art reached its highest perfection in the seventh century, and is best represented by the finds in the county of Kent. After this period it rapidly declined throughout Europe, and by Carlovingian times had practically disappeared. As far as this continent is concerned, Southern Russia is the most important district which we have to consider, for it is here that this jewellery made its first appearance. With its subsequent development in Europe we are not directly concerned, but two small objects of European origin, both now in the British Museum, have been reproduced to illustrate the class (Plate XVI. figs. 4 and 5), one a Visigothic buckle from Spain, the other a brooch in the form of a fish, probably from the Rhine.[b] Before proceeding to describe the objects under discussion it will be well to define the terminology to be employed and to touch upon their more prominent characteristics.

[a] Cochet, *Le tombeau de Childéric Ier*, Paris, 1859. The objects found in this tomb are described in all books dealing with Teutonic jewellery. The sword is finely reproduced in Bock, *Kleinodien des heiligen Römischen Reichs*, pl. xlvi., and in Labarte, *Histoire des Arts industriels au Moyen age*, vol. i.

[b] Among the numerous accounts of Teutonic inlaid jewellery, especially with regard to its passage across Europe, may be mentioned the following: C. de Linas, *Origines de l'Orfèvrerie Cloisonnée*, and *L'Orfèvrerie Mérovingienne*; J. de Baye, *Origine orientale de l'Orfèvrerie Cloisonnée et son introduction en Occident par les Goths, Compte Rendu du congrès international d'archéologie prehistorique et d'anthropologie*, Moscow, 1892, i. 353 ff.; other papers by the same author in various archæological publications; Henszlmann, *L'âge du fer, étude sur l'art gothique, Compte Rendu*, as above (Buda Pesth, 1876); F. de Lasteyrie, *Histoire de l'Orfèvrerie* (Paris, 1875), 65 ff.; E. Molinier, *Histoire des arts appliques a l'industrie*, vol. ii. *L'Orfèvrerie*, chapter I. M. de Lasteyrie's account has been reproduced with additional illustrations by M. A. Odobesco in his monumental work on the Treasure of Petrossa. Those unfamiliar with the general appearance of the typical inlaid jewellery of Western Europe may consult J. Y. Akerman, *Pagan Saxondom* (London, 1855); the early volumes of *Archaeologia Cantiana*; and H. Baudot, *Mémoire sur les sépultures des Barbares de l'époque Mérovingienne en Bourgogne* (Paris, 1860) in which volumes numerous coloured plates will be found. Many of the fine examples from the Caucasus now at St. Petersburg are figured by Kondakoff Tolstoi and Reinach, *Antiquités de la Russie Méridionale* (Paris, 1892).

The general term which will be used in this paper is "inlaid jewellery," which, although far from adequate as a description, may be provisionally adopted as a matter of convenience. Following a French usage, I had previously employed the word "incrustation," but this has been abandoned, as critics of judgment and experience have pointed out that the word would probably lead to a confusion of ideas. Various alternatives were at the same time proposed, some of which introduced terms descriptive of the art of mosaic, with which, especially the Roman *opus sectile*, this jewellery has technically points of resemblance. But an objection to this change is that as the goldsmiths usually relied for their effect upon the vivid contrast between the colour of the stones and that of the gold, and as the gold usually divides each individual stone from its neighbour, any such definition would ignore the constant and important part which is played by the intersecting metal divisions. A further objection, which equally applies to the usual French term *orfèvrerie cloisonnée*, is that a second variety of inlaid jewellery which has for centuries been united with the cloisonné type and has always been discussed in relation to it by the numerous writers on this subject, would not be covered by the definition. These two varieties which we shall shortly describe as cloisonné- and plate-inlaying respectively, are so indissolubly associated in the literature of the subject, that even were there no other grounds for maintaining the connection, it would be desirable to treat them together for the convenience of students alone.

By inlaying we here mean the ornamentation of the surface of an object with small slices of coloured stone or glass paste, applied without the intervention of heat; the process is thus essentially distinct from that of enamelling, to which, however, in some of its varieties it often bears a superficial resemblance. The ground to which the stones are attached, frequently by means of a mastic, is usually though not always flat, the finished jewel offering one or more plane surfaces which produce their effect upon the eye, not by varied relief or beauty of form, but by strong contrasts of colour. It is by its appeal, often by violent means, to the sense of colour rather than that of form, that inlaying is so unfortunately distinguished from Greek and from the better class of Roman goldsmiths' work; but when we condemn it as barbaric, we must remember that the objects on which we base our judgment are usually among the latest and most degraded specimens of a very ancient art. The base is made of metal, gold for choice, or in default of this, silver or gilt bronze; but we may notice in passing that inlaying has been applied in various countries and at different times to all kinds of materials. Gems have been inlaid in ivory, wood, onyx and jade;

wood in wood, and stone in stone; but the coloristic principle is the same from the inlaid tiles of Persia and Spain, to the *pietra dura* of Florence, or the brass and tortoiseshell of Boulle. Of the two varieties of inlaid jewellery already mentioned, the first and most important, to which the term *orfèvrerie Cloisonnée* strictly applies, is that most frequently found among objects from Teutonic graves in Europe. Here the slices of stone or paste are inserted in contiguous cells applied as in the case of cloisonné enamel, and the name *cloisonné-inlaying* will therefore be appropriated to it, though the English words inlaid cell-work or cell-inlaying would have answered the purpose had the French term not been consecrated by long usage. In the second and less common method, which is best represented in Eastern Europe by the fibulæ of Petrossa, and in the West by the votive crown of the Visigothic King Svinthila (fig. 2), found in 1858 at Guarrazar, near Toledo, and now in the *Armeria Reale* at Madrid,[a] the gold surface is itself pierced with holes of various shapes disposed in such a way as to form a diaper or simple design; these holes are then filled with stones fixed in mastic and supported at the back by a second unperforated plate of gold. Speaking generally, the difference between this method and the preceding is analogous to that between plate-tracery in Gothic architecture and the bar-tracery which succeeded it. The architectural analogy is perhaps close enough to justify the description of this second method as *plate-inlaying*, and it is quite possible that in jewellery as in architecture, the simpler may be the earlier form. The point of transition between the two would be reached in cases where the holes cut in the upper plate are exceedingly numerous and occupy as much of the surface as the metal, so that the general effect approximates to that of work carried out by means of applied cloisons or partitions. It would seem reasonable to suppose that a goldsmith who had reached this stage might be naturally led to the discovery that

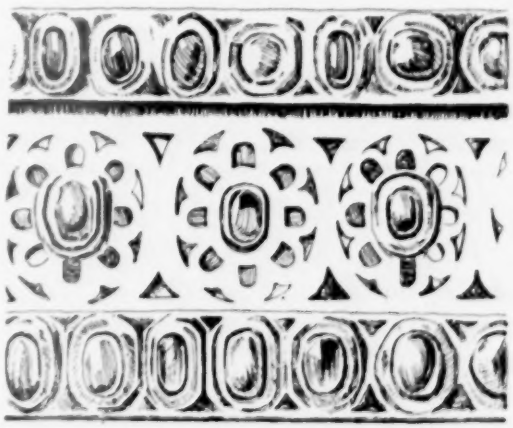


Fig. 2. Section of the Crown of the Visigothic King Svinthila.

[a] Bock, *Kleinodien*, as above, pl. 37; F. de Lasteyrie, *Le Trésor de Guarrazar* (Paris, 1860); Molinier, *L'Orfèvrerie*, 12. The various crowns of Guarrazar, most of which are in the Cluny Museum at Paris, are mentioned in all books treating of barbaric jewellery.

work of finer quality and greater possibilities might be produced by abandoning the continuous sheet of metal and cutting it into strips placed edgeways between the stones. But examples of plate-inlaying, as above described, do not appear to have been found in Egypt, where, on this theory, they might be expected to occur; though objects such as the cedar axe-haft of the eighteenth dynasty in the Cairo Museum [a] covered with a plate of gold in which carnelians and other stones are

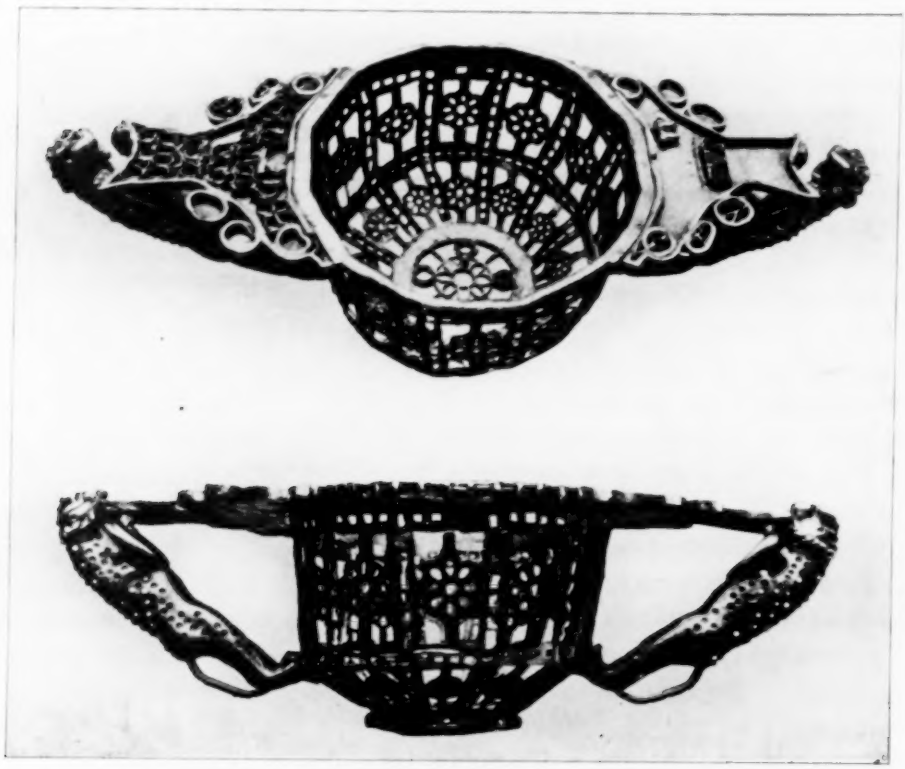


Fig. 4. Openwork vessels from Petrossa. After Odobesco, *Le Trésor de Petrossa*.

inlaid so as to form hieroglyphs would seem to indicate a similar process: here, however, the inlaid plate has apparently no metal support at the back, but rests directly on the wooden haft. It is possible that further discoveries in Egypt and the East may finally decide whether cloisonné- and plate-inlay have been technically and historically related from the earliest times, or whether their

[a] De Linas, *Origines de l'Orfèvrerie Cloisonnée*, i. 26.

association only dates from the early centuries of our era when they are found together in objects connected with the south of Russia.

Another variety of inlaying may be mentioned in this place, though we are not directly concerned with it. In this the metal is entirely in openwork, like the leading of an old-fashioned window, so that when the stones are inserted, the appearance is much the same on both sides. It thus resembles cell-work without a background, but it is necessarily stronger and coarser, the cells not being built up out of small strips, but formed from a continuous plate of metal. This style, which we shall call openwork inlay, is consequently less suited for jewels than for objects of a larger size, such as dishes and vessels, in the manufacture of which it has been used in the East both in ancient and modern times (fig. 3). Having now defined the meaning of the terms which it will be convenient to employ, we will proceed to the examination of the actual objects, without delaying to describe the discoveries by which the distribution of inlaid jewellery within the limits of Europe has been established, or to summarise the theories to which they have given rise. These tasks have already been performed and it is unnecessary to repeat them. There is, however, one author who deserves especial mention in this place, the French scholar, Charles de Linas, who devoted years of his life to the study of inlaid jewellery, and whose various publications, especially his *Origines de l'Orfèvrerie Cloisonnée*, though sometimes diffuse, are full of useful and suggestive facts. All those who have laboured after him in the same field, whether they agree with his conclusions or not, owe a lasting debt to his industry and insight.

In 1877 important discoveries of antiquities were made at a site variously reported as a ford near Takht-i-Kawât (Kuâd), between Khulm and Kabadian, and a spot a stage to the north of the Oxus on the route to Samarkand, and about two days' journey from Kunduz.[a] They brought to light some 1,500 gold and silver coins, and a number of statuettes, plaques, rings, and ornaments of the same metals, the whole having probably been buried in the banks of the Oxus itself or of a tributary stream, and washed away at some time by a flood. If the objects were all deposited on a single occasion, we must assume that they constituted a family treasure acquired during a long series of years, for they are probably,

[a] Cunningham, on "Relics from ancient Persia in gold silver and copper," in *Journal of the Asiatic Society of Bengal*, vol. 50, pt. 1 (1881) 151 ff., 52, pt. 1 (1883) 64 ff., 258 ff. Kondakoff, Tolstoi and Reinach, *Antiquités de la Russie Méridionale* (Paris, 1892), 284 ff. The place would thus be not far removed from the trade-route from India to the Caspian and Black Seas, which passed from Cabul to Balkh and thence to the Oxus.

like the coins, of different dates. Among these last were darics, pieces struck by the Satraps Tiribazus, Pharnabazus, Tiridates and Pharnaspes, tetradrachms of Athens, coins of Akanthus in Macedonia, Aspendus, Byzantium, and Tarsus, of Alexander the Great (about 200), Andragoras, Pixodarus of Caria, Lysimachus of Thrace, Seleukus Nikator, Antiochus I., II., III., Diodotus and Euthydemus. There were no Parthian coins, and none of Eukratides the contemporary of Mithridates I., the products of whose mints are not at all uncommon. The coins thus cover a period ranging between the end of the fifth or the beginning of the fourth century, and about 180 B.C., and these dates accord in general with the nature of the other objects, with which, however, are a few things of later period. It is very unfortunate that the circumstances attending the discoveries are imperfectly known; nevertheless, the style of their component parts is sufficiently marked to enable us to draw conclusions of considerable importance. It is perhaps useless to speculate as to the manner in which this treasure, commonly called the Treasure of the Oxus, reached this remote part of Asia. It has been suggested that the greater part was hidden by some prince or chief who went to join the army of Euthydemus against Antiochus the Great, and never returned to recover his property.

Among the earlier and finer objects composing the treasure, are two massive gold penannular rings[a] with winged monsters at the ends and incurved backs, the form suggesting that they were intended to be held in the hand and not worn upon the wrist. Their shape and elaborate execution would ill adapt them for actual wear, though simpler armlets[b] of this shape have been found at Amathus in Cyprus, and on various other sites; they may have been the funeral ornaments of some great personage or else objects of a ceremonial nature. The monuments show that rings were used ceremonially in Assyria and Persia, and it may be remembered that annular and penannular rings with the same peculiarities of form have been found at various bronze-age sites in Europe, especially at Morges and Thonon on the Lake of Geneva; while other prehistoric examples are preserved in the museums of Brunswick and Turin.[c] They have always been regarded as

[a] Now in the British Museum and the Victoria and Albert Museum respectively. First published by Mr (now Sir George) Birdwood in *The Illustrated London News* soon after their discovery.

[b] In the British Museum.

[c] Desor et Favre, *Le bel âge du bronze en Suisse*, c. xi. p. 24; Chantre, *L'âge du bronze*, i. 173 ff.; Lindenschmit, *Alterthümer unserer heidnischen Vorzeit*, iv. pl. 43; R. Monro, *The Lake Dwellings of Europe* (London, 1890), 531; G. and A. de Mortillet, *Le Musée préhistorique*, pl. lxxxix. No. 1069 (after Gastaldi, *Frammenti di paletnologia Italiana*, pl. xii. fig. 1); Odobesco, *Le Trésor de Pétrossa*, 453 ff., where the ceremonial use of rings is discussed at some length.

ceremonial objects, and are usually known as *Schwurringe* it having been suggested that they are analogous to the *armilla sacra* which the ancient Germans held in their hands when about to swear a solemn oath. Now the affinities of the Oxus armlets are unmistakable. They are Persepolitan, and such work can only have been produced under the Achaemenid Kings of the fourth or even the fifth century B.C. The modelling of the monsters, which, though not strictly gryphons, may, for the sake of brevity, be described by that name, is exactly that rendered so familiar to us on the carved reliefs of Persepolis (fig 4), and a glance at any illustrated work in which those sculptures are reproduced,[8] will at once reveal the identity of treatment. This is especially marked in the case of the limbs, wings, and horns; while more distant analogies from earlier Asiatic art may be seen among the carved slabs from the Assyrian palaces in the British Museum. The importance of this early origin lies in the certainty which it affords that inlaid cloisonné jewellery was being made at this remote date, if not in Persia, at least in Bactria under the strongest Persepolitan influence. The presence in the Oxus Treasure of other objects of undoubted Iranian origin, as well as the general considerations already adduced, are in favour of Persia itself. Hitherto the earliest Persian jewel ornamented with inlaid stones, has been the gold girdle-plate of the early Sassanian period found at Wolfsheim (fig 16), which is an example of plate-inlaying and not of cloisonné-work in the proper sense; but we now have a monument made in Persia ornamented with inlay in the Egyptian manner, some six hundred years earlier in date than the Wolfsheim jewel. We cannot definitely assert that the inspiration came ultimately from Egypt, for similar cloisonné jewels from intermediate countries have yet to be discovered. Assyria has so far proved barren, and it has still to be proved that jewellery of purely native manufacture in this style ever existed. But there is ground for the belief that inlaid ornaments

Fig. 4. Scene representing a mythological Combat, at Persepolis. After Flandin et Coste.

[8] *e.g.* Flandin et Coste, *Voyage en Perse*, iii. pls. 123, 151, 152, 157, 164; Perrot and Chipiez, *History of Art in Persia*, i. 145 (English edition). For the mythological combat, see Dieulafoy, *L'art antique de la Perse*, iii. 81.

not very different in kind from Egyptian originals may have been introduced into the Assyrian Empire as early as the ninth century B.C., and that if native craftsmen failed to produce similar work, it was not for want of accessible models. These may have lacked the fine quality of the best Egyptian models, but they would be sufficiently attractive to invite imitation, and it is not impossible that at the time of Sargon and his successors, similar work may have been executed in the country.*

Fig. 5. Ivory carving from a throne, formerly gilt and inlaid with lapis lazuli, from Nimrûd. In the British Museum.

The discovery by Sir Henry Layard of the well-known inlaid ivories at Nimrûd provide substantial proof of this early importation. In a chamber in the North West Palace, that is to say the earliest of the three palaces in the city, built by Ashur-nasir-pal (885—860 B.C.), he discovered a number of finely-carved panels in which, among subjects of an Asiatic character, are reproduced

* For various speculations on the nature of Assyrian jewellery at this period, see de Linas, *Origines*, i. 44-72.

many purely Egyptian designs. Among these are, for instance, an Egyptian woman holding a lotus flower, and standing beneath a winged disc; Egyptian personages seated on inlaid thrones; a carving from a throne with two gryphons (fig. 5), and a small panel with the raised and inlaid figure of a beetle, the type of the Egyptian god Khepera (fig. 6). Now the inlaid parts of these carvings are cut into imbrications and fine cells reserved in the ivory, the cavities having been originally filled with lapis lazuli and the parts remaining in relief gilded. The whole character of the work shows how close and intimate the connection of Egypt and Assyria must have been at this early time, yet they are not purely Egyptian, but made by imitators of Egyptian models.[a] Whether or not these imitators were Phœnicians is not material to our present purpose; the important

Fig. 6. Inlaid figure of a beetle from Nimrûd. In the British Museum.

point is that their work supplies a possible link bringing the Oxus armlet into connection with the inlaid pectorals and other Egyptian jewels,[b] now preserved at

[a] For other early work in ivory from Praeneste, Chiusi, and Veii, see W. Helbig, in *Annali dell' Instituto di Corrispondenza Archeologica*, xlix. (1877) 398 ff., and li. (1879) 5 ff.; *Monumenti inediti* of the same Institute, x. pl. 38 and figs. 1 and 1a, and xi. pl. ii. figs. 1-6; R. Garrucci, *Archaeologia*, xli. (1867) 187 ff. For remarks upon such early ivories, see also A. J. Evans, *Journal of the Anthropological Institute of Great Britain and Ireland*, xxx. (1900) 200. Examples of the hybrid art to which the Nimrûd ivories belong will be found in Perrot and Chipiez, *History of Art in Phœnicia and its Dependencies*, ii. 338 ff. and 402 (London, 1885).

[b] J. De Morgan, *Fouilles à Dahchour* (Vienna, 1895), pl. xv. xvi. xix-xxi. Perrot and Chipiez, *History of Art in Ancient Egypt* (English edition, London, 1883), ii 381, and figs. 311-313.

Cairo and in the great European Museums. For when we consider what the appearance of these ivories must have been when the gilding and the inlay were intact, it is easy to believe that they were imitations in another material of the class of inlaid gold ornaments of the twelfth and nineteenth dynasties best represented by the Dashûr jewels (fig. 1), by the pectoral of Queen Aah-hetep at Cairo, and by that of Kha-em-uas, son of Ramses II. in the Louvre; the close imitation of Egyptian designs and cartouches, as well as the employment of a characteristic Egyptian technique, place some such a connection beyond all doubt. Nor is there anything surprising in such a relationship. The artistic influence of the Nile Valley had been carried far and wide over the Eastern Mediterranean from very remote times, and we can trace the fashion of inlaying in the Aegean as early as the Mycenæan Age. Gold rings and other objects of that period inlaid with blue pastes simulating lapis lazuli have been found in the islands, and we learn from the discovery at Enkomi in Cyprus of a pectoral inlaid with pastes that articles of Egyptian manufacture were also imported. The period to which the Nimrûd ivories belong, intervening as it did between the close of the Mycenæan Age and the dawn of archaic classical art in the sixth century B.C., was marked by great commercial activity and by the diffusion throughout the Mediterranean of a hybrid art, in which Egyptian and Assyrian traditions were blended. To these influences we might fairly assign the introduction of inlaid work into the Euphrates Valley and Persia, as well as into the Italian peninsula, where it has left traces of its presence in an ivory sheath inlaid with amber from a pre-Etruscan tomb at Veii (fig. 7). From Italy it would appear to have reached Hallstadt, where it is illustrated by the great ivory sword-hilts inlaid with amber in a similar fashion (fig. 8). Although the amber doubtless came from the North, we may fairly assume, in view of the early dissemination of inlaying in the Mediterranean, that the technique came in from the South, and that the craftsmen of Central Europe in the early iron age learned to apply amber to a new style of ornament. The fashion does not appear to have persisted, and did not survive in the La

Fig. 7. Ivory sheath inlaid with amber, from Veii. From *Archæologia*, vol. xli. pl. vi.

Fig. 8. Ivory sword hilt inlaid with amber, from Hallstadt. From a cast.

Tène period; it is a remarkable fact that Central Europe, which ultimately received this art from the distant shores of the Black Sea, should have failed to encourage its development when it penetrated the heart of the continent a thousand years earlier by a more direct route.

We have thus obtained the following data in support of a hypothesis connecting the inlaid jewellery of Egypt with that of Persia. The Egyptian jewels are related to gilt inlaid ivories found at Nimrûd, and probably dating from the ninth century B.C., while the Persepolitan armlet, which is decorated in the Egyptian way, is the product of an art which proceeded from that of Assyria and everywhere betrays its influence. Even were the ivories the only representatives of inlaid work known in Assyria, they might almost have suggested the local manufacture of jewels in the same style; but, as has been already suggested, actual jewels of Egyptian origin, or copies of them, must surely have been known in that country during the period of the early empire when Egyptian influence was strong, and may well have been imitated by local workmen. Once introduced into the Euphrates Valley, an art which appealed so strongly to the Eastern love of splendour, would naturally spread over a wide area, and survive to the times of the Persian Empire. The Oxus armlets would thus provide a link between Persia and the more ancient monarchies to the West.

It is in dealing with the ancient history of inlaid jewellery that the principal difficulties are encountered. For the central part of the genealogy connecting Persia with Southern Russia is less dependent on speculation, while the later descent from Southern Russia through Hungary, and the countries lying further to the West has already been so amply demonstrated by various writers that it needs no further evidence. It is now necessary to take up the thread of the inquiry at the intermediate point, and follow this branch of the jeweller's art from Persia to the banks of the Don. We shall then retrace our steps and discuss some interesting examples of plate-inlay, dating from the earliest centuries of our era, one of which, a reliquary hitherto unpublished, was found in a Buddhist tope near Jelalabad in Afghanistan. It will then be recalled that both plate and cloisonné-inlaying are found united in objects belonging to a treasure ascribed to the fourth century A.D., and closely connected with Southern Russia. In order to perform the first of these tasks, it will now be necessary to describe the Oxus armlets in greater detail.

They are massive gold, perhaps solid at the back but tubular at the ends, the metal being everywhere sufficiently thick to admit of the cutting of the rather

deep cavities seen on the flanks, legs, heads, horns, and tails of the gryphons. The wings, which are flat on the inner sides, are covered on the outer with thin applied cells imitating feathers, while the necks are ornamented with similar cells forming an imbricated design. Down the breast and along the back runs a broad sunk band divided transversely by applied partitions forming broken lines, between which were set flat pieces of stone cut to the required shape. Only one of these now remains in position in the well-protected place between the wings. The presence of the broken line, itself a feature of early Teutonic inlaid work, should be especially remarked, for not the least remarkable point in the long history of inlaying is the persistence of ornamental details through wanderings which occupied many hundreds of years and extended over thousands of miles. The tails of the gryphons, which are square (fig. 9) form a continuation of the band down the back, though the rectangular cells into which each are divided are not in applied work, but formed by partitions reserved in the metal, the same method being adopted on both of the horns. The cup-shaped terminations of the horns are very characteristic features of Assyrian and Persepolitan Art, and may be noticed on the reliefs from the Assyrian palaces in the British Museum, and on the sculptures of Persepolis, where also the similarity in the treatment of the whole monster, especially the modelling of the limbs, is at once apparent.[a] We may draw special attention here to the manner of ornamenting the flanks by means of sunk cavities intended to receive inlaid stones, for as we shall shortly see, this method forms an important link connecting the armlet with the work of the countries whose art we have next to describe. It may be noticed that on the thighs of the gryphons these cavities are so arranged as to form a pattern composed of a circular dot between two comma-like lines. This pattern[b] is commonly found upon barbaric ornaments of the seventh to eighth centuries in Southern Russia, Hungary, Lombardy, and Western Europe, where it occurs upon the flat links of the chains from which the crown of Svinthila is suspended.

Fig. 9. Back view of gryphon on gold armlet from the Oxus. (Plate XVI. fig. 1.)

[a] The cup-like terminations of the horns are most noticeable in the case of the monsters without bird-like heads at the corners of the Takht of the Royal Tomb (Perrot and Chipiez, i. 219). In other examples of the mythological combat, what looks like a horn with expanded end, may be simply part of the mane which the assailant grasps to secure a firmer hold.

[b] Riegl, *Die Spätrömische Kunstindustrie aus den Funden in Oesterreich-Ungarn* (Vienna, 1901), 204.

It is also seen on the sixth century *transennae* of the Cathedral of Ravenna, and is supposed to have been first employed in pierced marble-work. But when we find this line-and-point motive upon objects from Persepolis dating from the fourth or fifth century B.C., and also upon gold ornaments from Siberia and South Russia, which as we shall see are technically allied to them, it is at least worth consideration whether, like the method of inlaying which it so early accompanies, it may not also have originated in the East.

The nature of the stones with which these armlets were set must now be discussed, for although the South Kensington example had lost all its inlay, while in that preserved in the British Museum only one complete slice in the back and a fragment in the right breast of one gryphon remained in their places, this was fortunately sufficient to decide the question. This armlet has been examined by Professor A. H. Church, who has submitted the fragment to a careful analysis, the result of which may be given here in his own words[a]: "I have now completed, so far as the very limited supply of material has allowed, my testing of the tiny bit of inlay from the gold armlet from the Oxus treasure.

"First of all, I ought to say that the fragment is not paste or glass of any kind, and has not been fused *in situ*. Nor has it been faceted, but the angular faces have been produced by chipping not by grinding.

"I tested the fragment for phosphoric acid, and found it; but I could detect no copper, to which element turquoise owes it colour. But there are other blue mineral phosphates. So I turned my attention to the best known of these, namely odontolite, or fossil turquoise, which is really mammoth ivory coloured blue naturally by vivianite or iron phosphate. But this substance dissolves easily in acids while your fragment was unattacked (turquoise likewise dissolves). The only other blue native phosphate which one might expect to encounter is *lazulite*, a mineral which occurs in several European localities, but has also been recognised in several Indian localities, as at Culabgarh. It is a 'hydrous aluminium phosphate,' but, unlike turquoise, is practically insoluble in acids and contains no copper. I cannot affirm that your inlay is certainly lazulite, but it behaves before the blowpipe exactly like this species, contains phosphoric acid, and, like lazulite, is hardly acted on by acids. There may be, and probably are, other blue phosphatic minerals still to be recognised, but I do not think you will be far wrong if you describe the inlay as 'probably lazulite, a blue aluminium phosphate resembling turquoise in hardness but of rather greater density.'"

[a] Letter to Mr. C. H. Read.

This result is interesting, for it suggests that the goldsmiths may have chosen this stone in preference to turquoise, because it more closely resembled the lapis lazuli of the earliest models known to them. In later times the turquoise has always been the favourite stone in Persia, and the mines of Nishapur in Khorassan had a very wide reputation in West Central Asia. Lazulite is of a fairly brilliant blue, whereas turquoise has a decided greenish tint, and this, under the circumstances, may have been sufficient to explain the preference shown for the former. The point may be of trifling importance, but it is worth mentioning, for such evidence as it affords tends to support rather than to invalidate the Egyptian origin of inlaid jewellery. The Oxus treasure contains another penannular armlet (Plate XVI. fig. 3), of smaller size, which would seem to be later in date. Its ends terminate in rams' heads, the necks being inlaid with turquoises in applied cells divided by partitions forming broken lines. In style and execution it is closely connected with the objects from the tumuli of Southern Siberia to which we must now pass.

The gold ornaments found in the tombs in the steppes of Western Siberia[a] form a class distinguished by great individuality of treatment. They have been discovered at various times since the days of Peter the Great probably for the most part about the upper waters of the Obi, and the majority of those now preserved in the Imperial Museum of the Hermitage have been in St. Petersburg for a great number of years. The early Russian settlers in Siberia found the exploration of tumuli a profitable occupation which they pursued with so much energy during the early part of the eighteenth century that few interments were left undisturbed. So systematic was the spoliation that a modern excavator is held to be lucky if in several hundred tumuli he finds a single undisturbed interment. The treasures yielded by the burial mounds thus came in such numbers into the local markets that they are said to have depreciated the local value of gold.[b] But though the abuse was checked by Imperial edicts,[c] no

[a] On these ornaments, see de Linas, *Origines, &c.* ii.; Kondakoff Tolstoi and Reinach, *Antiquités de la Russie Méridionale*, 364 ff.; Odobesco, *Le Trésor de Pétrossa*, pt. i. 230.

[b] J. R. Aspelin, *Compte Rendu of the International Congress of Anthropology and Prehistoric Archaeology, Stockholm*, 1876, 555-6; W. Radloff, *Aus Sibirien* (Leipzig, 1884), ii. 76; de Linas, *Origines &c.* ii. 193 ff.; Kondakoff, Tolstoi and Reinach, as above, 368 ff.

[c] W. Radloff, in *Materials for Russian Archaeology*, Part 15 (1893), *Appendix*, 53, published by the Imperial Archaeological Commission, St. Petersburg (Russian). In this appendix four of the plates from Witsen's *Noorden Ost Tartarye*, representing Siberian antiquities are reproduced.

records of the circumstances attending individual discoveries have hitherto been available, and little is therefore known of the history of particular objects or of the other objects in baser metal with which they were associated.[a] It is, however, practically certain that these gold ornaments belong to mounds of the iron age, for they frequently represent animals of monstrous and fantastic form which are entirely absent among the remains from bronze-age tombs in the same area.[b] As to the precise time when the use of iron became common, there is no satisfactory evidence; but a comparison of objects of the iron age from the Altai Steppes with others from the Scythian tombs north of the Black Sea seems to show that the new metal was known as early in Siberia as in Southern Russia,[c] while the earliest Chinese records mention no tribes using bronze weapons. To discuss the identity of the people who made these inlaid jewels would compel us to enter into vexed questions on which the opinions of ethnologists are not unanimous. They were probably for the most part nomadic horsemen, and have been conjecturally identified with the Massagetae, whose partiality to gold ornaments was remarked by Herodotus.[d]

These Siberian antiquities are largely composed of bracelets, diadems and ornamental plaques of gold bearing representations both of the fauna of Central and Western Asia and also of monstrous animal forms. The plaques were most likely applied both to the costume of men and to the trappings of their horses, the fondness of the inhabitants of the Steppes for this kind of ornament being well known from very ancient times. The greater part of these treasures probably belonged to chiefs and important persons who were able to obtain abundant supplies of the precious metals. The Ural and Altai Mountains were not the only sources from which gold was derived;[e] Upper Tibet has been described by medieval and modern

[a] M. de Kieseritzky, Keeper of the Department of Greek and Scythian Antiquities at the Hermitage, St. Petersburg, will shortly issue a profusely illustrated catalogue of the Siberian ornaments, in which much fresh information is promised.

[b] W. Radloff, *Aus Sibirien*, ii. 84 and 127.

[c] J. R. Aspelin, *Antiquités du Nord Finno-Ougrien* (translation G. Biaudet, Helsingfors, 1877) 46-7.

[d] On the question of the early inhabitants of the Siberian Steppes, see Radloff, *Aus Sibirien*, ii. 129 ff.; Kondakoff, Tolstoi and Reinach, *Antiquités de la Russie Méridionale*, Part iii. 323 ff.; Klements, *Antiquities of the Minusinsk Museum*, 65 ff., Tomsk, 1886 (Russian).

[e] A. Lappo-Danilevsky in *Materials for Russian Archaeology*, Part 13 (1894) p. 14 (Russian); N. Popoff, *V. Tatischeff and his times* (Moscow, 1861), 563-4; Herodotus, Book I. 215, iii. 98, 102; Strabo xi. 8, 6.

travellers as highly auriferous region; and a Russian traveller of the eighteenth century records that in his day Bokhara and Turkestan were so rich in gold and silver that the inhabitants only used what they found on or near the surface of the ground. The most characteristic feature of these Siberian ornaments lies, as has been already remarked, in the sinking in various parts of the design, for instance on the flanks of the animals of small triangular, circular, or pear-shaped cavities in which turquoises and garnets are embedded. We have seen that this brings them into connection with the Persepolitan armlets in which we noticed an identical style of decoration, and the procedure may well have been introduced from Persia, the influence of which country spread far beyond its own borders in very early times. As an illustration of this we may draw attention to a barbaric gold ornament (fig. 10) representing the lion-headed gryphon of Persian art, which formed part of the Oxus treasure. This monster was also adopted by the Greeks, and a good example of it may be seen on the famous fourth-century vase of Xenophantos, found near Kertch in 1836. On this vase is painted a scene representing barbarians hunting gryphons both of the lion and eagle-headed varieties, and the appended names of the hunters are principally Persian.[a] If the above view of the origin of embedding is correct, the process may represent a crude attempt to enhance a sculptural effect, and to accentuate by a contrast of colour the characteristic conventional treatment of animal joints and muscles seen on Persepolitan and Assyrian sculptures. In the hands of barbaric goldsmiths it would rapidly overpass these anatomical limits in proportion as love of mere splendour predominated over a higher artistic sense, and would finally run wild over the surface of the ornament, as is the case in some of the Siberian plaques which appear to be sprinkled with turquoises in a fashion which confuses rather than assists the eye. It may be, however, as De Linas among others supposed, that this method of embedding originated in Asia, and that its presence on the Oxus armlets is due to a reflex influence from Scythian art. The new catalogue of the Hermitage collections will, it may be hoped, place us in possession of important evidence on this point. Meanwhile it may be

Fig. 10. Gold plaque from the Oxus Treasure, representing a lion-headed gryphon.

[a] *Compte Rendu de la Commission Impériale archéologique*, 1866, 139 ff. *Atlas*, pl. iv.

remarked that even if this peculiar form of embedding should prove to be of Asiatic invention, it would not follow that cloisonné inlaying had the same origin.

It now becomes necessary to mention one or two of these Siberian objects, a comparison of which may assist in determining the date of the whole class.

Fig. 11. Gold plaque from Siberia, in the Museum of the Hermitage, St. Petersburg. From an electrotype in the Victoria and Albert Museum, South Kensington.

There is in the Hermitage at St. Petersburg a gold plaque (fig. 11),[a] in the form of a great bird of prey holding a wild goat in its claws. The neck, breast, and upper part of the wings of this bird are covered with cells, in which there

[a] De Linas, *Origines*, ii. 196; Kondakoff, Tolstoi and Reinach, as above, 379. This bird was reproduced in *Archaeologia* as early as 1773, see vol. ii. pl. xv., but the figure is very inaccurate.

are said to be traces of red stones or pastes; while in the body and in the horns of the goat are sunk cavities of the usual style which were apparently once filled with turquoises, such a combination of red and blue stones being not uncommon in these Siberian plaques. The goat is executed in a style resembling that of other animals represented in a well-known treasure[a] from South Russia, and to this fact we owe one of the few clues which we have to the age of the Siberian and South Russian ornaments. This treasure was discovered in 1864 at Novotcherkask on the Don, and contained, amongst other objects, two gold armlets, three small boxes and a collar embedded with turquoises in the familiar Siberian style, a gold statuette of Eros playing on a pipe, and a crown or tiara of beaten gold set with cabochon stones, the upper rim of which was surmounted by a row of deer (fig. 12), and branches of smilax, while the front was set with a bust of an empress carved in pale amethyst or calcedony. The bust, which must have originally been made for another object, is usually held to be late Roman work of about the third century A.D., and thus gives an approximate date for the treasure, a date which would be strikingly confirmed if the coins of Augustus, Nero, and Galba obtained in Tobolsk in the eighteenth century, were really taken from Siberian tombs.[b] The little birds upon the upper rim are ornamented in the same way as the large bird of prey which has just been described, and from the lower edge hang a number of pendants of earlier date in the style of those found in the later Greek ornaments from Kertch, showing that the crown was probably made in Southern Russia. From the large bird of prey and the Novotcherkask treasure we therefore learn that this curious Siberian style of jewellery, in which embedding and cloisonné inlaying are combined, was practised to the west of the Ural Mountains in the first centuries of our era, and in Siberia itself almost certainly earlier. For among the Siberian objects are examples with representations of birds and monsters, in which the style of the cloisons is so closely allied to that seen on the Oxus armlet,

Fig. 12. Deer from the top of the gold crown from Novotcherkask, in the Museum of the Hermitage, St. Petersburg. After Kondakoff.

[a] De Linas, *Origines*, ii. 131 ff. and accompanying plates; *Compte Rendu de la Commission Impériale Archéologique* (St. Petersburg, 1864), 20; de Lasteyrie, *Hist. de l'orfevrerie*, 67-8; Kondakoff, Tolstoi and Reinach, as above, 488 f.

[b] Figured in Witsen, *Noord en Ost Tartarye*, 4th plate of antiquities; reproduced by W. Radloff; in *Materials for Russian Archaeology*, Part 15 (1894), 134. See also Kondakoff, Tolstoi and Reinach, as above, 367.

that they cannot be far removed in point of date. Particularly remarkable in this respect are a figure of a bird holding a swan in its claws,[a] and a magnificent

Fig. 13. Top of a hookah inlaid with turquoises from Yarkand. In the India Museum, South Kensington.

gold penannular collar, the ends of which terminate in winged monsters.[b] It is clear that in Persia, and in the countries beyond it to the north-east, the art of

[a] Kondakoff, Tolstoi and Reinach, as above, 381, fig. 334.

[b] This collar is, I believe, still unpublished.

inlaying was practised in great perfection at any rate as early as the fourth century B.C., and if Persia was the earlier centre of manufacture, the fine inlaid work of modern Central Asia, of which our museums contain a few examples (fig. 13), but which is splendidly represented in the collection of Oriental arms in the Hermitage at St. Petersburg, is of Persian descent. We may safely follow de Linas in assuming that Bactria played a prominent part in the manufacture of jewellery; and this country being inhabited by a cultivated people, and at the same time a Satrapy of the Persian Empire was particularly qualified to transmit Persian influence to the barbaric tribes north of the Oxus. In support of the Persian claim, we may again refer to the fact that the winged monsters of Siberian art are almost certainly immigrants from Hither Asia, and it has been conjectured that cultural influences from this region penetrated as far as the Yenisei even before iron was known.[a] Now if Persia transmitted these monsters to Central Asia several centuries before Christ, she may well have also introduced the cloisonné work with which we suppose her to have been long acquainted. I am aware that the style of the Siberian plaques, notably in the grouping of the animals, the confusion of plastic and pictorial methods, and the general ignorance of perspective, has been compared to that of early Chinese art,[b] and that, other things being equal, the identical arguments just adduced in favour of Persia might be used in support of a Chinese claim. But whereas we have in the Oxus armlets Persian inlaid jewels which may go back as far as the fifth century B.C., from China we have nothing of equal age. Those who know China best are not disposed to lay much stress upon her possible artistic influence on countries to the West very long before the Christian era; and even in far later times the initiative in important artistic departures in the Middle Kingdom is held to have come from outside. For instance, cloisonné enamelling was introduced from western, presumably Byzantine, sources towards the close of the Yuen Dynasty, for the name of Chih-chêng (1341-1367), is found underneath the foot of cloisonné pieces which may be accepted as contemporary with that emperor. The art was officially adopted in the reign of Ching-tai (1450-1456), who belongs to the succeeding Ming Dynasty.[c]

The enquiry has thus led us through lands civilized and barbarous to our anticipated goal in the country known to the Greeks as Scythia, whose coasts had

[a] Aspelin, *Antiquités du Nord Finno-Ougrien*, translated by G. Biaudet, 47.

[b] Kondakoff, Tolstoi and Reinach, as above, 408.

[c] Dr. S. W. Bushell, *Oriental Ceramic Art*, Section 8, 286.

been occupied for many centuries by colonists of Hellenic descent. The question therefore naturally arises, what was the relation, if any, of inlaying to the Greek goldsmith's art? We have already had occasion to remark that the inlaid work of ancient Egypt influenced Mycenaean jewellery, and that in the centuries which followed the Mycenaean age, ivories inlaid with amber in imitation of the Egytian technique were produced in Northern Italy and Upper Austria. But Hallstadt seems to be the extreme limit which this fashion attained in Central Europe before the Christian Era; it does not appear to have found favour with the craftsmen of the La Tène and late Celtic periods, or to have made any further progress towards the north and west; while the amber-inlaid ivories themselves are but rude and debased examples of the sumptuous art from which they claim descent. Nor did the inlayer's skill appeal to the Greek of classical times as it had appealed to the men of the Mycenaean age, and we may take it that Hellenic art of the best period had little or nothing to do with inlaid jewellery as we understand it. To the fine Greek sense of beauty it would perhaps have appeared meretricious, and traces of it among Hellenic jewels are extremely rare. But it does appear to have obtained entrance into one district inhabited by Greeks, and that the very region to the north of the Black Sea with which we have already been concerned. The bezel of a gold ring, and a disc attached to a gold pin discovered in Greek tombs of the late third century B.C., in the Taman Peninsula[a] are inlaid with glass pastes divided by fine gold cloisons forming rosettes, while another ring has an inscription executed in a similar style but filled with enamel. We know further that inlaying on a larger scale was commonly practised at Kertch, the decorated wooden sarcophagi found in the tombs being inlaid with figures in ivory. But although inlaid jewellery was thus known to Greek goldsmiths, the examples made by them are so few in number that the art can hardly have been widely disseminated. It is true that the treasures of Petrossa and Nagy Szent Miklos,[b] which are assigned to the culture-area of the Greek settlements, were ornamented with inlaid stones, but they are both several centuries later than the ring and pin from the Taman Peninsula and reveal the predominance of Persian and barbaric influences. There is thus a long interval

[a] *Compte Rendu*, 1880, 52 3, and *Atlas*, pl. i. figs. 13 and 17. For the enamelled ring, see *ibid*, 77, and *Atlas*, pl. iii., fig. 7.

[b] For the formerly inlaid objects in the Nagy Szent-Miklos treasure, see J. Hampel, *Der Goldfund von Nagy-Szent-Miklos* (Buda-Pesth, 1885), 104; the treasure is also figured in the same author's work in Hungarian, *A Regibb Kozepkor*, *&c.* (Buda-Pesth, 1894). For the treasure of Petrossa, see below.

unillustrated by archæological discovery; but it may well be that the fashion of inlaying, once introduced into the Greek sphere of influence on the Euxine, lingered on through the period of artistic decline, becoming more and more barbaric, but perhaps receiving an occasional stimulus through the importation of fresh examples from Persia or Scythia. The late date of the Taman grave and the absence of similar inlaid work in the earlier tombs which have been excavated, would seem to show that the settlers did not bring the art with them, but learned it after their arrival in their new homes; and the similar absence of a continuous series of inland ornaments among the Græco-Scythian jewellery of the same early period would tend to prove that the Greeks neither taught the fashion of inlaying to their northern neighbours nor learned it from them. We might be tempted indeed to trace some such early Greek influence on the inlaid work of Scythia if the treasure of Novotcherkask (*see* above) is, as some have supposed, earlier than the Christian era. But most archæologists assign to this treasure a considerably later date; and even should it be more ancient that it is usually considered, it would not prove that the Greeks introduced inlaying into the Scythian area. For as we have seen, Siberian ornaments are in existence closely allied in style to the Oxus armlets and independent of Greek influence. There is, in fact, good reason to conjecture that inlaid jewellery first gained a permanent foothold in European Scythia, not from the South, but from the East, and that it travelled from the Oxus to the banks of the Don, across the Obi and the Ural Mountains; the evidence for the proof or disproof of this hypothesis lies in St. Petersburg, and it is from Russian archæologists that we may expect a solution of the problem. The appearance of inlaying among the later Greek jewellery of the Taman Peninsula, may, with greater probability be attributed to the more direct influence of Persia, coming from the shores of the Black or Caspian Seas, or across the Caucasus. Numerous objects of Persian origin, or in imitation of the Persian style, are found in the Greek tombs of Kertch, notably cylinders[a] engraved in intaglio with Greek as well as Persian subjects; and it is quite possible that the Greeks imitated Oriental inlaid jewels just as they reproduced the Asiatic cylinder. This direct Persian influence was continuous, and is very marked in the case of the Petrossa treasure.

[a] *Antiquités du Bosphore Cimmérien*, pl. xvi. figs. 2, 3, 5, 6; *Compte Rendu*, 1881, pp. 81-88, and *Atlas*, pl. v. figs. 6-7, 8-9; 1882-8, *Atlas*, pl. v. fig. 3; Kondakoff, Tolstoi and Reinach, as above, p. 67. Objects showing a direct Egyptian influence have also been found in the tombs of Kertch (*Compte Rendu*, 1880, 74-75), and it is possible that the Greek inlaid work, especially the wooden sarcophagi, may have owed something to this source.

We must now retrace our steps and consider a group of ornaments inlaid in another style, which we have denominated plate-inlaying. The apparent rarity of this style among Siberian finds would seem to show that it never made headway north of Persia and Afghanistan, and that it became popular in Iran later than the cloisonné variety. Future discoveries may prove both these suppositions erroneous; they are admittedly based upon negative arguments, and must be regarded in the light of provisional hypotheses.

The first of these examples of plate inlaying is a reliquary (Plate XVI. fig. 2), discovered in 1879 by Mr. William Simpson in the Ahin Posh Tope (Stûpa) near Jelalabad.[a] This stûpa, which was about 80 feet in diameter, was composed of large water-worn boulders embedded in clay, within an outer shell of large stones and slates. The reliquary lay in a small cell or cist about 15 inches square, built upon the level of the ground and composed of slates laid in horizontal courses. It was surrounded by two or three handfuls of ashes and 18 gold coins, and contained two more gold coins with several fragments of a brown substance, which has been examined by Professor Church, and thus described by him:

"On heating the small fragment of brown substance from the Indian reliquary it gave off an aromatic or resinous odour and became nearly black but did not diminish in bulk. The residue on further heating became nearly white. On pouring on to this residue a few drops of nitric acid it gave off a little carbonic acid gas, and nearly completely dissolved when subsequently warmed. The solution contained lime and phosphoric acid. The conclusion that I draw from these tests is that the substance in question may be a fragment of bone which has been saturated with some resinous substance. I cannot recognise anything akin to bony structure under the microscope, however, and so my deduction from the tests applied still needs confirmation. It might turn out that the osseous constituents were merely bits of the same cement used to fix the stones in their cavities on the reliquary. In many places in India, lime being rare, shells, both fresh-water and marine, are burnt to yield it for many purposes. There is some phosphate, though very little, in such lime. Its powder makes with some resins a firmer and stronger cement than the resins alone. I merely mention this as a point not to be ignored in any conclusion based on the detection of phosphoric acid in the particle you gave me. My view is that bone ash was 'indicated' but not proved." It is therefore possible, but by no means certain, that these fragments are the relics over which the tope was erected.

[a] *Proceedings of the Asiatic Society of Bengal*, 1879, 77-79.

The casket, which is 3⅞ inches long, is in the form of an octagonal prism, having at each end a pearled border, and a large loop for the cord by which it was suspended round the neck. It is opened by drawing out or pushing in one end, the moveable portion sliding into the body of the box and not covering it like a cap; the same method of closing recurs in another cylindrical box of plain gold found with Indo-Scythian coins at Manikyala in the Punjab, and now also in the British Museum. The six surfaces of the prism are pierced with holes, alternately oval and leaf-shaped, originally inlaid with almandine garnets and leaf-shaped pieces of pale grey-green stone, described by Professor Church as *Bowenite*, a variety of serpentine chiefly worked in the Safid Koh Range to the south of Jelalabad, and still used in the Punjab for making knife and dagger handles, and in mosaic work. At each end is a design formed of a central garnet within a circle of six hearts, which were almost certainly once filled with the same green stones. Had the heart-shaped perforations been eight in number it might safely have been assumed that this design was intended to represent the Buddhist lotus (padma), for this flower is commonly found on relic boxes or upon the tiles placed over the cists in which relics were deposited. The lotus flowers impressed upon tiles from Sagarwa, in the Terai of Nepal,[a] are very conventionally treated, a deep depression, usually circular, marking the centre of each leaf and giving the whole an appearance not unlike the present design. The garnets on the reliquary are still all in their places; but of the leaf-shaped pieces of serpentine only one remains, the empty spaces from which the others have fallen revealing the manner in which the box was made. It was double, a space of about ⅛th inch separating the inner cylinder of plain gold from the perforated and inlaid outer case. The exterior of the inner cylinder thus formed a support for the matrix of resinous gum, and in this the stones which filled the apertures were fixed; the reliquary is therefore an example of the plate-inlaying which has been described above. The safety of the garnets seems to be explained by their being cut of a larger size than the holes in which they were set and by the gold having been rubbed over their edges, while the leaf-shaped stones only just fitted their apertures.

The coins discovered with the reliquary, and now in the British Museum, were described by Dr. Hoernle while they were still in India.[b] Seventeen of them belong to three kings of the Indo-Scythian dynasty, viz. ten to Hima

[a] Archæological Survey of India, *Report on a tour of exploration of the antiquities of the Tarai, Nepal, the region of Kapilavastu, in* 1899, by Babu Purna Chandra Mukherji, with pref. by Mr. V. Smith.

[b] *Proceedings Asiatic Society of Bengal*, 1879, 122 ff.

Kadphises (c. 30-78 A.D.), six to Kaniṣka (Kanerki) (c. 85-106 A.D.), and one to Huviṣka (Hverki) (c. 111-142 A.D.). Three are Roman, one of Domitian (81-96 A.D.), one of Trajan (98-117 A.D.), and one of Hadrian (117-138), the last-mentioned coin having on the obverse the bust of Julia Sabina, who died 137 A.D. Of the two contained in the reliquary one was of Hima Kadphises (Hoernle, p. 123, No. 9, and pl. II. and III.) and one of Kaniṣka (p. 131, No. 13). All the coins, with the exception of one of Kadphises, are in very good preservation and have suffered little from wear.

The presence of these coins enables us to approximately determine the age of the casket. The gold of which they are made is very soft, and would soon show signs of attrition if they were in constant circulation. The absence of any coins of Vāsudeva, the successor of Huviṣka, or of any of the kings who followed him, suggests that the treasure was deposited during Huviṣka's reign. For the coins of Vāsudeva are more numerous and better known than those of any of the Indo-Scythian kings, and have been found in other topes. His successor also minted without intermission, so that unless we suppose that it was customary to deposit in topes only coins which were no longer current, an usage for which there would appear to be no evidence, we may place the date of the tope at about the middle of the second century. In view of the regular communication existing at that time between Parthia and the West, the presence of Roman coins would offer no difficulty, and there is no reason why a coin of Hadrian should not have been in Afghanistan before 150 A.D. The form of the reliquary differs from that of the caskets commonly found in Buddhist monuments. The loops at the ends show that it was intended to be worn round the neck, and it may therefore be assumed that it was not made expressly for interment, and may be a few years older than the tope. We may perhaps conjecture that the reliquary was the personal property of some prince, and that it was worn by him as a receptacle for some venerated object. It may have been then placed by him during his lifetime, or by others after his death, in the stûpa in which it has now been discovered after the lapse of seventeen hundred years. We seem to trace similar objects suspended from cords across the shoulders of Kings and Bodhisattvas (fig. 14) on the contemporary sculptures from the same district, formerly called Græco-Buddhist, but now named, after the district in which they are found, Gandhâra sculptures.

Fig. 14. Sculpture from Gandhâra in the British Museum.

Analogous objects, or else beads of exceptional size, are also to be seen on the still earlier sculptures from the railings of the Great Tope at Bharhût, which probably dates from the third century B.C. (fig. 15). In some cases, as the illustration will show, a prism with the pearled borders at the ends is very clearly represented, though the large loops for attachment, which form a feature of the reliquary, are not in evidence. We are, therefore, perhaps justified in assuming that the form was familiar in India long before the Ahin Posh Tope was erected, though it may well have been originally introduced from the Nearer East. There are indeed general considerations which might almost persuade us that both the form of the reliquary and the art in which it is ornamented are of Indian origin. The inlaying of rubies and garnets in gold rings and other jewels has always been practised by the goldsmiths of Northern India, whence it probably passed to Burmah and Siam, countries where it is equally popular. And when we remember the traditional splendour of the Indian princes in the most remote times, their great wealth, and the unlimited supply of rubies, garnets, and other precious stones at their command, we shall scarcely be inclined to deny that inlaid jewels might well have been manufactured further east than Afghanistan at a much earlier date than that at which the reliquary was made. We have also to remember that it was from India, from Asoka's kingdom of Maghada, that the Buddhist missionaries carried their faith, and with it doubtless many of the arts of the advanced Gangetic civilisation, into the district of Gandhâra two and a half centuries before Christ. But such considerations are outweighed not only by what we already know of the early connection of Persia with inlaid jewellery, but also by the teaching of history as to the influence of that country upon India. It must not be forgotten that even before the time of Asoka, Persia had powerfully affected the art of the peninsula, and that any wave of influence which accompanied Buddhism towards the West may have been merely a reflux to an original source. Gandhâra especially was from early days under direct western, and especially Persian, influence. It was incorporated in the great empire of Achaemenides, and the Gandharioi sent a contingent to the army of Xerxes. It was on the highway of commerce between Hither Asia and India, and the invading host of Alexander passed through its territories. On the death of the Conqueror, it fell to the lot of the Seleucidae, who were in alliance with the Indian monarchy of Magadha. Early in the second century B.C., it was seized by the Greek princes of Bactria,

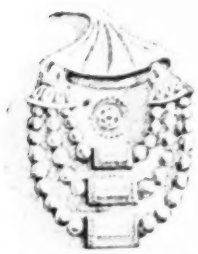


Fig. 15. Detail from the Sculptures of Bharût. After Cunningham.

who had revolted from the Seleucidae in 248 B.C., and who were pushed to the south by the impact of the Scythian tribes. The Greeks maintained their power until 20 B.C., when the Kuṣana princes, so called from one branch of the great Scythian people, the *Yueh-chi* or *Yueh-ti*, established their power in the country until in their turn they were driven south by the Hiong-Nu. But through the whole of this period, this part of Asia never ceased to be permeated by the influence of the western civilisations. The Gandhâra sculptures show many traces of Hellenistic and Roman influence, and even the christianity of the early Roman Empire is held to have left its mark upon them. The testimony of art and archæology in fact reveal a continuous trend of influence from west to east, and motives derived from Persian architecture may be traced not only in Gandhâra, but much further east in the Buddhist ruins of Sanchi in Bhopal, and of Amarâvati on the Kistna. But in addition to the evidence of art or history, the coinage of the district furnishes abundant proof of the close connection which always existed between Gandhâra and the West.[a] The coins of the Achaemenid kings circulated in the Punjab; while before 322 B.C. Athenian money had arrived in the course of commerce and was imitated in the local mints. Coins further show that Parthian influence on the various Scythian dynasties was continuous, while an Indo-Parthian dynasty reigned in Kandahar and Seistan, the best known member of which, Gondophares (the first year of whose reign was 21 A.D.), has left an inscription at Takht-i-Bahi. Coins of the Roman Empire found their way in great numbers, not only into the north, but also into the south of India; and finally there was a close intercourse between later Kuṣana kings and Sassanian Persia. It will be seen that of all the influences exerted on India, of which we have any record, that of Persia was the most immediate and unbroken. After the extension of the power of the Arsakides (Parthians) in the first century B.C., this influence was especially strong. It seems probable that the Parthians, and not the early Seleucid monarchs, were the principal carriers of classical influences into Gandhâra, for it is in their time that the sculptures reach their highest perfection,[b] and that Iranian names and divinities are seen upon the coins. But there are other proofs of a more concrete nature, which tend to show that inlaying came into Afghanistan from Iran. In 1870 there was discovered at Wolfsheim, near Mayence, a gold object, apparently part of the decoration of a girdle (fig 16).

[a] E. J. Rapson, *Indian Coins*, vol. ii. of the *Grundriss der Indo-Arischen Philologie und Altertumskunde* (*Encyclopedia of Indo-Aryan Research*), 3 and 4.

[b] J. Burgess, *The Gandhâra Sculptures* (London, 1899), 6, 7.

ornamented by plate-inlaying with almandine garnets in a style almost precisely similar to that of the reliquary from Ahin Posh. Punched on the plain gold back was the name *Artaschshater* (Ardeshir) in Pehlevi characters of an early form, suggesting that the person referred to can be no other than the first Sassanian King of that name (d. A.D. 238). The importance of this buckle was at once recognised, for its form, unlike that of Teutonic types, confirmed its Persian origin. Its occurrence so very far away from the country of its birth is ingeniously explained by Herr von Cohausen,[a] who suggested that it formed part of the treasure of Alexander Severus when he was assassinated near

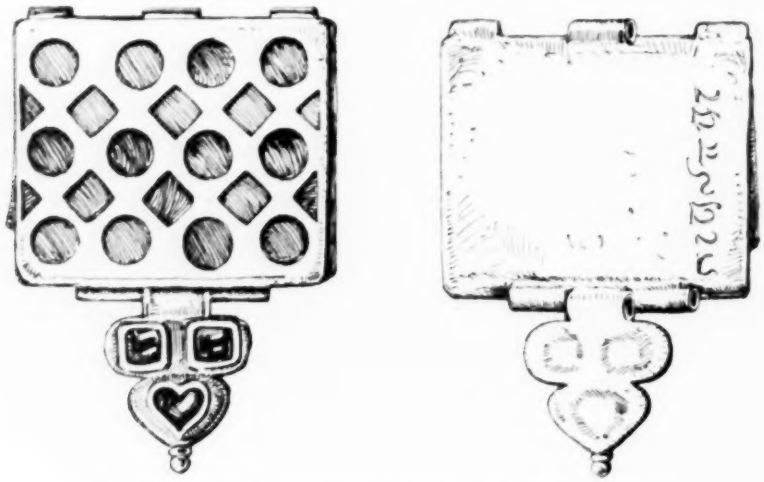


Fig. 16. Gold girdle-ornament of Sassanian work inlaid with garnets.
After Von Cohausen.

Mayence in 235 A.D. It will be remembered that Severus conducted a victorious campaign against Ardeshir, and it is not unreasonable to suppose that this jewel was amongst the spoils taken from the vanquished king. As long as no contemporary Oriental monument was known to exist, it was still possible to dispute the authenticity of the girdle-plate by supposing the inscription to have been placed upon an article of Western manufacture by a Persian mercenary in the Roman service.[b] But it is here that the importance of the Ahin Posh reliquary

[a] *Annalen des Vereins für Nassauische Alterthumskunde und Geschichtsforschung* (Wiesbaden, 1873), 9 and plate i. fig. 3. The Wolfsheim ornament is also figured and discussed by de Linas, *Origines*, &c. i. 5 and pl. i.; and Molinier, *Histoire des arts*, &c. *L'Orfèvrerie*, iv. 15.

[b] Molinier, as above footnote.

becomes manifest. In it we have an example of the same kind of work, which, from the conditions of its discovery, cannot possibly have been influenced by Teutonic art. Its existence not only renders the Oriental origin of the Wolfsheim jewel unassailable, but also considerably strengthens the view of de Linas with regard to certain parts of the Petrossa treasure, to which we shall shortly have occasion to refer. It further makes it extremely probable that jewellery of a similar kind was made in Persia before the accession of the Sassanian dynasty; for if the date assigned to the Ahin Posh Tope is correct, and inlaying was really introduced into Gandhâra from the Persian side, then it is clear that Iranian goldsmiths must have been producing work of this description in Parthian times. Plate-inlaying, like cloisonné-inlaying, may have existed in ancient Egypt[a] and if so it would have also crossed the Euphrates, and have been practised at the Achaemenid Empire. Evidence in proof of this may exist which is unfortunately unknown to me; but from the facts to which I am limited by my restricted knowledge I do not feel able to venture more than a guess. There are several possible conclusions as to the origin of this style of work: that it started in Egypt and was thence transmitted to Mesopotamia and Persia; that it originated in Persia; or in India; or that it was introduced into India and Persia from Central Asia. We require more evidence than that at present available before the question can be finally decided.

A link must now be sought to bring these Persian jewels into connection with the examples of plate-inlaying made in barbaric Europe, such, for example, as the votive crown of the Visigothic King of Svinthila (fig. 2), to which reference has already been made. This link is provided by the famous treasure of Petrossa,[b] found in 1837 near the Wallachian village of that name, and now preserved, though in a sadly mutilated condition, in the Museum at Bucharest. Several of the objects composing this treasure are inlaid with garnets and other stones, and in some cases both plate and cell-inlaying are simultaneously employed. The plate-inlaid objects are three fibulæ in the shape of birds, and a larger ornament, also in the form of a bird, intended to be worn either as a pectoral or as a

[a] See above.

[b] The bibliography of this treasure is now very large. The best account is to be found in the large work by M. A. Odobesco entitled *Le Trésor de Petrossa*, in which the earlier books and treatises are mentioned. There is a monograph upon it by F. Bock in the *Mittheilungen des K.K. Central Commission zur Erforschung und Erhaltung der Baudenkmale, &c.* (Vienna, 1868); it was described for the Arundel Society by R. H. Soden-Smith in 1869, and is discussed by Labarte in his *Histoire des Arts Industriels*, by de Linas, *Origines de l'Orfèvrerie Cloisonnée* and *Orfèvrerie Mérovingienne*, and Venturi, *Storia dell' Arte Italiana*, ii. 5ff.

decoration for the head (fig. 17). The heads and breasts of the birds are made of thin plates of gold, pierced to receive drop-shaped garnets, the lower parts being ornamented with the same stones set in cells. The treasure contains three other inlaid objects of the highest interest, viz. a gorget (fig. 18), and two polygonal vessels with handles (fig. 2). The first is a very elaborate example of plate-inlaying, for the leaf and heart-shaped apertures intended to contain the stones are very numerous and close together, so that the whole in a perfect state would almost produce the effect of cloisonné work. The polygonal vessels were once the finest examples of open-work inlaying in existence, but the thief who stole and mutilated the treasure robbed them of most of the crystals and coloured gems with which they were set. Their original appearance was, however, placed on record soon after their discovery, and they have been reproduced in colours, as they once appeared, by M. Odobesco, the principal historian of the treasure. We need not enter here into the discussion to which the peculiar features of the treasure of Petrossa have given rise. All authorities agree that the objects of which it is composed must have been imported into Roumania (part of the ancient Dacia) from Southern Russia, because some of them are evidently the products of Mix-hellenic art, and could only have been made in a district like that in the neighbourhood of the Pontic Settlements of the Euxine littoral, where the tradition of the older Greek goldsmiths' art still lingered on after the beginning of the Christian era. But it has been debated whether the treasure is homogeneous, or whether it is composed of elements drawn from different countries. M. Odobesco is in favour of unity, and has ably set forth the arguments on which his opinion is based.[a] He does not deny that Oriental influence is present, but he

Fig. 17. Inlaid gold ornament from Petrossa. After Odobesco.

[a] *Le Trésor de Pétrossa*, part iii. 6.

thinks that the treasure was made in Europe, possibly by Greek goldsmiths, to the order of the Goths.

De Linas and other more recent writers are inclined to lay rather greater stress on the manifest Persian analogies presented by the treasure. They compare the inlaid fibulæ of Petrossa with the Wolfsheim girdle-plate, and point out that the open-work vessels of Petrossa are identical in style with the dish of Chosroes I. (531-579) in the *Cabinet des Médailles* at Paris, which has in the centre a crystal cameo in which the Sassanian King is represented, and of which the Persian origin is beyond dispute. For our present purpose the actual spot in which the treasure of Petrossa was manufactured is only of secondary interest. The important point is that the examples of inlaid jewellery which it contains are products of an art which reached South-eastern Europe directly or indirectly from Persia, for, as we have seen, plate-inlaying was practised in that country at an earlier date than that assigned by any authorities to the objects found at Petrossa. This treasure, though parts of it may be earlier, can hardly be later than the third quarter of the fourth century. At that time the Huns drove the Goths out of Russia, and it is held that the treasure was carried away by the fugitives, perhaps by their King Athanaric, who ultimately died at Constantinople. However this may be, the bird-fibulæ supply the requisite link between the Ahin Posh reliquary and the Wolfsheim girdle-plate on the one hand, and the crown of Svinthila on the other. For no one has disputed that they belong to the same art as the crown; while their affinity with the two Asiatic objects is equally impossible to ignore.

Fig. 18. Gold gorget from Petrossa.
From an electrotype in the Victoria and Albert Museum, South Kensington.

The chief aim of this Paper is now accomplished, for it has been shown that the principal varieties of inlaying met in Southern Russia in the early centuries of our era, and their transmission to Western Europe by the Goths and Gepidæ is so universally accepted that it needs no discussion here. The Goths were thus not the inventors of a new style of jewellery, but the adapters and the

carriers of a style which originated in another continent long before they left their Scandinavian home.

A few remarks may be added on the relation of inlaid jewellery to Roman and Byzantine art. Its earliest connection with the Roman Empire is still rather obscure. But if it had been flourishing in Persia several centuries before Christ, and in Western Scythia from the beginning of the Christian era, it is obvious that a change of taste in the direction of coloristic effect was all that was needed to insure its introduction into the Roman provinces. This change would in fact appear the moment the Roman learned to prefer the showy and brilliant to the more solid and unpretentious ornament of the past. There seems little reason to doubt that such a change had begun to take place as early as the second century, and Dr. Riegl in his recent work on late Roman art-industry in Austria,[a] is inclined to claim for late Roman art, many of the most striking jewels usually ascribed to Gothic workmen. Among these are the often quoted pierced frames from Petrianecz and Szilagy-Somlyó,[b] which enclose medallions of various Roman Emperors from the close of the third to the close of the fourth century, and a remarkably fine gold brooch of the fifth century found at Apahida in Transylvania. He maintains that there is nothing in the style of inlaid jewellery which is inconsistent with the traditions of late Roman art, and that inlaying was practised within the bounds of the empire quite independently of Teutonic influence. In his view, even the crowns of Guarrazar, whether actually made by Visigoths or not, show traces of late Roman or early Byzantine influence and descent. Dr. Riegl will probably develop his views at greater length in the second volume of his book, and it is therefore premature to discuss opinions which have not been stated in their final form. There certainly seems no reason why inlaid jewellery should not have been known in some parts of the empire in quite early times without any intervention on the part of the Goths or other Teutonic peoples, for it is surely possible that jewels ornamented in this way might as easily have penetrated the districts which border on Persia on the west, as the countries towards the Indian frontier on the east. Such a development, for example, would be quite possible towards Syria, which contained some of the most productive garnet mines in the world. For similar reasons it might legitimately be assumed that inlaid ornaments were made in Constantinople from the very beginning. For it is known that skilled craftsmen of all kinds were

[a] A. Riegl, *Die Spätrömische Kunstindustrie in Oesterreich-Ungarn*, 172-184 and 202-207.

[b] Hampel, as above, 165; F. von Pulszky, *Die Goldfunde von Szilágy Somlyó* (Buda-Pesth, 1880).

invited to take up their abode in the new metropolis, and it can hardly be doubted that artificers from the northern shores of the Euxine, where as we have seen, inlaying was known long before 330 A.D., availed themselves of the profit and security which such an invitation implied. I do not know that any piece of Byzantine inlaid jewellery exists which can be attributed to the early centuries of the new empire; for perhaps few would be now inclined to follow Labarte and others who ascribed to Byzantine workmen many of the finest Western European pieces such as the

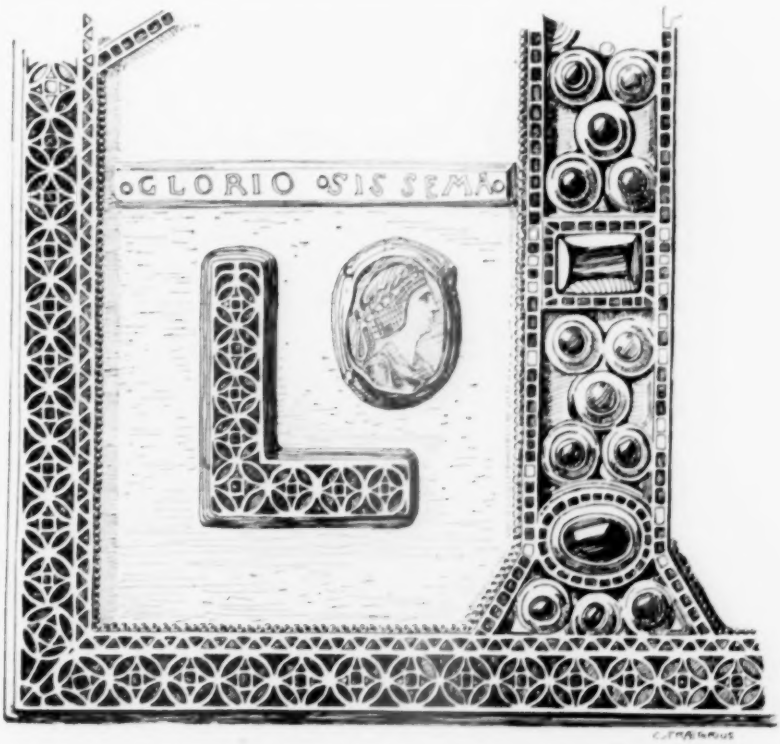


Fig. 19. Section of an inlaid gold cover for a book of the Gospels, presented by Theodelinda, Queen of the Lombards, to the Cathedral of Monza. After Bock.

sword of Childeric and the book-cover (fig. 19), presented by the Lombard Queen Theodelinda to the Cathedral of Monza.[a] But although the fact is impossible to prove, there is nothing inherently improbable in the suggestion that this kind of jewellery may have been well known on the Bosphorus before the time of

[a] Best reproduced by Bock, *Kleinodien des heiligen Römischen Reichs*, pl. xxxv. See also Molinier, *L'Orfèvrerie*, 9.

Justinian. For it seems certain that similar work continued to be produced in Constantinople after it had died out in Western Europe, and a good example is still preserved in a tenth century cover of a Book of the Gospels[8] now in the treasury of the Cathedral of Limburg-on-the-Lahn, which is decorated with plaques of typical Byzantine enamel within borders of pearls and inlaid stones

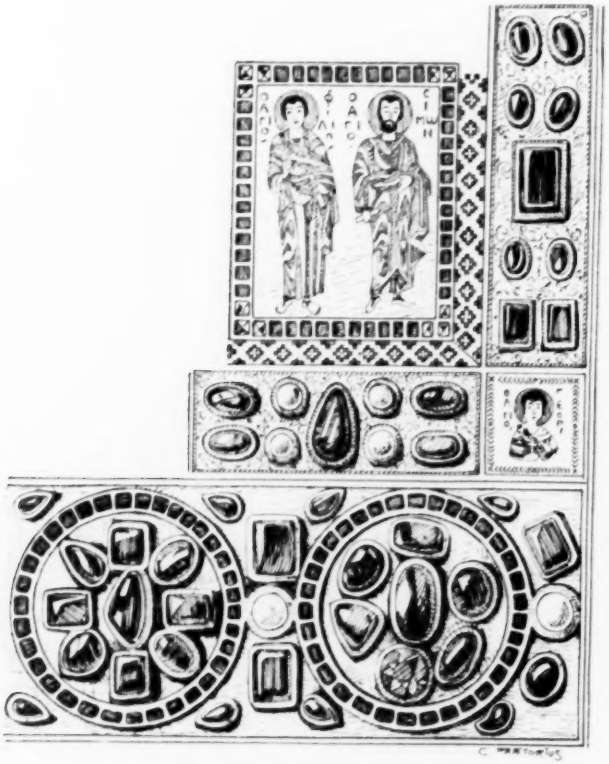


Fig. 20. Section of a Byzantine inlaid and enamelled cover of a book of the Gospels at Limburg-on-the-Lahn. After Aus'm Weerth.

(fig. 20), and bears inscriptions with the names of Constantine VII. (Porphyrogenitus) and Romanus II., thus placing its date between 948 and 959, when these

[8] Molinier, as above, 46-48; Didron, *Annales archéologiques*, xvii. 337; Aus'm Weerth, *Das Siegeskreuz des byzantinischen Kaisers Konstantinus VII. und Romanus*, plate i. (Bonn, 1866). This book-cover was brought from the sack of Constantinople in 1204 by a German knight who gave it to the nunnery of Stuben near Trèves. After the French Revolution it was taken to Ehrenbreitstein, and in 1815 became the property of the Duke of Nassau, who in 1827 presented it to the Cathedral of Limburg.

two princes were associated in the empire. It is hardly likely indeed that a style of ornamentation which was practised in neighbouring countries at so very early a date should have been altogether neglected by the goldsmiths of the metropolis, only to be adopted after the lapse of 500 years, when the barbarians of the north were discarding it as something antiquated and out of date.

The central fact in the history of inlaid jewellery is its close connection with Persia, a link which seems to have been already recognised in Europe at least as early as the seventh century. When Gregory the Great presented to Adaloald, the Lombard king and first husband of Theodelinda, the copy of the Gospels to which allusion has already been made, he sent with the book a letter describing it as enclosed in a Persia cover (*theca Persica inclusam*). Now there seems good reason to think that this *theca Persica* is no other than the inlaid book cover now at Monza to which reference has already been made,[a] and that it was so called because inlaid work was commonly accepted in Europe as an *opus Persicum*, an art of Persian introduction; the term would thus be no less natural or significant than our word china, which points to the Asiatic derivation of the porcelain now manufactured in every civilised country of the west. In view of the facts brought forward in the course of this Paper there seems nothing far-fetched in such a theory. The long association with Persia of the second variety, which we have called plate-inlaying is equally well attested, and whether the two styles entered Europe together or at different times, they were united in southern Russia at any rate as early as the fourth century A.D.

In conclusion, I must express my thanks to the Director of the Victoria and Albert Museum, South Kensington, for several photographs; to Mr. F. G. Hilton-Price for the loan of the block of fig. 1A; to Professor A. H. Church for his kindness in determining the nature of the stones in the Oxus armlet and the Ahin Posh reliquary; to M. de Kieseritzky, of the Imperial Museum of the Hermitage, St. Petersburg, for showing me the wonderful collection of Scythian antiquities under his charge; and to Mr. C. H. Read not only for suggesting the desirability of some such enquiry as I have endeavoured to pursue, but also for much valuable assistance in the course of the work; indeed the views to which it gives such inadequate expression coincide in large measure with his own. Nor can I omit to mention another debt which is shared by all archæologists, and more especially by the Members of the Society of Antiquaries. The Oxus treasure, which is so important for the history of inlaying was originally purchased by Sir A. Wollaston

[a] Molinier, as above, 17.

Franks, K.C.B., late President of the Society, and bequeathed by him to the nation in 1897. Perhaps it is even yet too early for us to appreciate to the full how great a loss we have suffered by his death. His long experience and remarkable archæological insight enabled him intuitively to grasp the importance of new facts while others were still sceptical or blind; and the generous support which he accorded to every branch of his favourite science will not readily be forgotten by those who have most sincerely at heart the permanent interests of archæology. It was his intention to have worked out in retirement many of the problems connected with the collections which he had brought together during his long and useful life, and we may be sure that those suggested by the Oxus Treasure would have been among the first to receive his attention. It is our common loss that his hopes were not destined to be fulfilled, and that his death removed too soon from our midst a personality equally admirable for learning, generosity, and kindliness of heart.

X.—*The St. Albans School of Painting, Mural and Miniature: Part I. Mural Painting.* *By* William Page, *Esq., F.S.A.*

Read 10th April, 1902.

The history of mural and panel painting in England before the sixteenth century may perhaps be divided into three periods. Firstly, that from the Norman Conquest, or possibly before, which continued during the wave of monastic enthusiasm which swept over Europe, and ended at the close of the thirteenth century. During this time there is every reason to suppose from the evidence of chronicles, fabric rolls, and works accounts that in England as well as elsewhere all the decorative arts were practised by persons associated together in schools or lodges with three gradations of members, namely, masters, workmen, and apprentices or novices.[a] Art was at this date fostered by the monasteries, indeed, those who practised it were largely drawn from the inmates of the Benedictine houses, and it would seem that, at all events at St. Albans, the sacrists were themselves workers and sometimes held the rank of master workmen.[b] During this period one man practised many arts. We know that Richard the Painter superintended the building of Hereford Castle in 1172,[c] and, later, Master John of

[a] Leader Scott, *The Cathedral Builders*, 16, 265, etc. For the gradation of workmen see the Exchcq. K. R. Accts., Works, Bdles. 466, 467, 468, 471, etc.

[b] Master Baldwin, a celebrated goldsmith, was sacrist in 1186 (*Gesta Abbatum S. Albani*, Rolls Series, 28 [4], i. 190, 191, 205). Master Walter of Colchester, of whom hereafter, was sacrist in 1213. Master Gilbert of Eversolt was sacrist and master of the works in 1218 (*Ibid.* 205, 219, 220). They seem to have obtained notoriety as master workmen before they became monks.

[c] Pipe Roll Soc. xix. 39; xxi. 121.

St. Omer, while making the great lectern for the chapter house at Westminster in 1253, had carpenters, masons, painters, smiths, and others working under his direction.[a] Numerous other instances could be quoted were not the practice so well known as to make it unnecessary.[b]

The second period grew out of the first, probably overlapping it, and continued till towards the close of the fourteenth century. There arose at the end of the thirteenth century a tendency to specialise, the painters severed themselves from the freemasons, and the number of religious art workers became less, the monks gradually ceasing to belong to the craft. The system, however, of working in lodges or schools seems to have continued under similar conditions as before. The tendency to specialise is well illustrated by the Exchequer Works Accounts, where we find that instead of, as formerly, a master workman superintending the work of artizans of all trades we have the master mason directing the masons only, the master painter directing the painters, and so on.

At the end of the fourteenth century, when the third period begins, the art of mural painting fell almost entirely into the hands of the skilled artizan, who worked more independently and was less fettered by the conventional rules which had been handed down in the earlier schools, giving perhaps more accuracy and skill but less feeling to his work. These painters travelled about the country and painted the numerous fifteenth-century pictures of very varying merit which remain on the walls of some of our churches.

To turn, however, to the subject which directly touches my paper, and which I think will illustrate the foregoing remarks, I would mention that St. Albans Abbey was founded by Offa II., king of the Mercians, about the year 793. How early there was a school of painting at the monastery we do not know. There is nothing known of a school of either painting or writing there in Saxon times, and if any such existed[c] all evidence of it was swept away by Abbot Paul of Caen, the first Norman abbot, who appears to have had the highest contempt for everything connected with the Anglo-Saxon race.[d] He entirely obliterated all traces of the Saxon church, destroyed the monuments of the Saxon abbots, and brought in the more severe rule of the Norman monasteries. It would not be surprising there-

[a] Exchcq. K. R. Accts., Works, Bdle. 467, Nos. 1 and 2.

[b] Dr. Alf. Woltmann and Dr Karl Woermann, *History of Painting*, i. 356.

[c] The only reference to any painting in the Saxon church is to that of the shrine (*Gesta Abbatum S. Albani*, i. 36).

[d] *Gesta Abbatum*, i. 62.

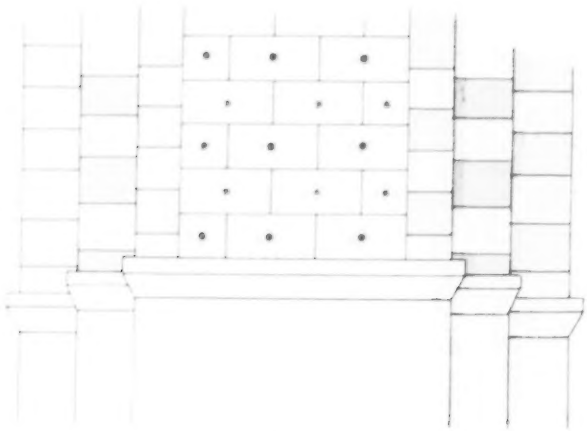


Fig 1
1ST NORMAN BAY

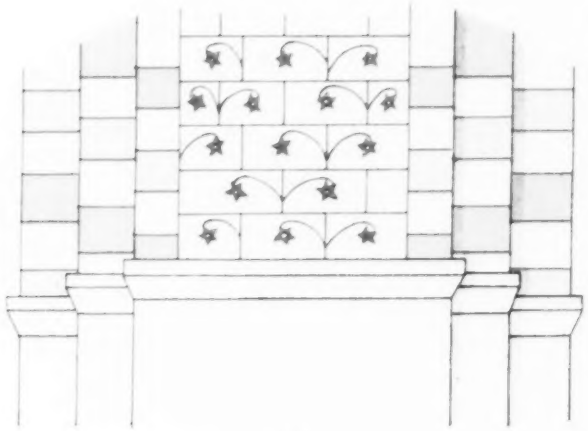


Fig 2
2ND NORMAN BAY

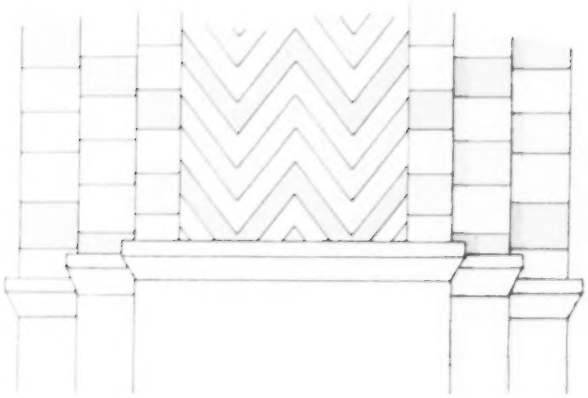


Fig 3
3RD NORMAN BAY

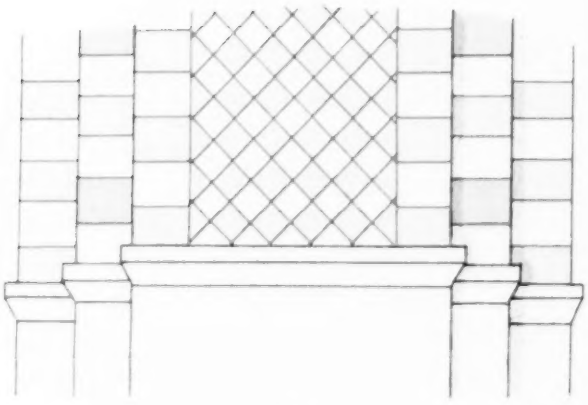


Fig 4
4TH NORMAN BAY

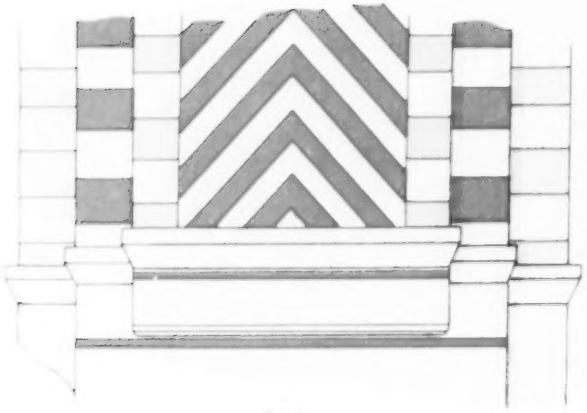


Fig 5
5TH NORMAN BAY

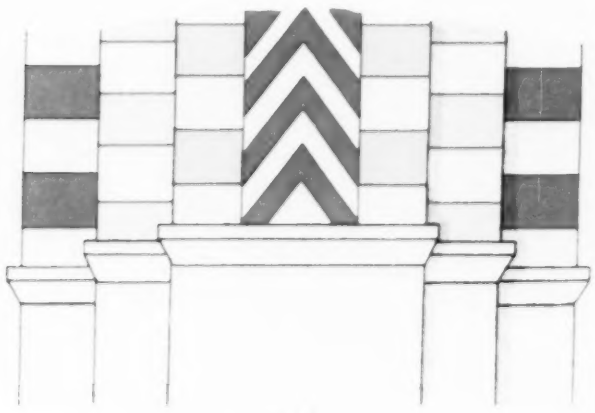


Fig 6
BAY IN CHOIR

Scale 1 inch to a foot

ST ALBANS ABBEY CHURCH — PAINTED DECORATION ON NORMAN ARCHES

fore, had there been a school of painting before the Conquest, that it should have been treated with that scorn which Abbot Paul meted out to all things Saxon.

Of the Norman church built by Paul of Caen (1077-1093), the choir and presbytery with their aisles and the transepts were probably the first parts of the church to be rebuilt, the nave being left till later. This theory is borne out by the fact that the dimensions of the pilasters of the piers and the orders above, in the bays east of the rood screen, are of different dimensions from those on the west. The arches of all the Norman bays now remaining are enriched with polychromatic ornament (Plate XVII.), and the decoration of all those on the east side of the rood screen is the same in design,[4] though differing in colour, and consists of two series of chevrons or chevrons reversed in red or blue on an ivory white ground meeting at the middle of the soffit, and having a border pattern of squares in red and blue or grey on the retiring orders, and this decoration, according to the evidence of the north-west pier of the tower, was apparently carried down to the ground. The whole is very effective though rude, and, if one may say so, pleasantly irregular in drawing. That this decoration was used contemporary with the arcade seems likely from the fact that the design changes so soon as it arrives at the slightly later work on the west side of the rood screen. The tower arches and some of the arches in the transepts[5] have the coloured squares in the orders, while the soffits are filled in with masonry pattern.

The decoration of each arch of the Norman bays on the north side of the nave is different. The easternmost has a series of red chevrons,[6] the next westward is lozengy yellow and white, the third has a design of double chevrons in yellow and grey, the fourth and fifth had originally only the masonry pattern, but at a later date five-leaved flowers and stems have been inserted into the masonry pattern of the one and stars and rosettes alternately into the other. The piers were decorated with the masonry pattern which was much used on the plaster throughout the Norman church.

The scheme of this early Norman polychromatic decoration is particularly interesting at St. Albans, being, as it is, applied to a building so extremely plain and entirely devoid of incised ornament that the only relief from its plainness was the coloured designs. Indeed the whole decorative effect was dependent upon colour, and therefore a bolder scheme could be indulged in than was possible

[4] See Plate XVII. fig. 6.

[5] The coloured decoration here has been renewed, and some of the decorations in the north transept are certainly not Norman in colour or design.

[6] See Plate XVII. figs. 1-5, for this and the following descriptions.

in the later work at Norwich, Ely, and other large churches. There is now no evidence that this coloured decoration was used on the walls above the ground story of the Norman church. The Norman vaulting which yet remains in the aisles of the presbytery is decorated with the masonry pattern and with bands of yellow ochre along the ribs. We learn from the *Gesta Abbatum Sancti Albani*[a] that the vaults of the eastern apses were painted in the time of Paul of Caen. The greater part of the rebuilding of the church in the time of Paul of Caen (1077-1093) was left to Robert the Mason, who was probably responsible for the coloured decoration.[b]

From mere decorative designs of the early Norman period we come at St. Albans, at the beginning of the thirteenth century, to a series of figure paintings, which are the work of a distinct school.[c] The founder of this school, or he who first brought it into notoriety, was Walter of Colchester. The earliest reference I have found, which apparently relates to this artist, is an undated charter by Adam of Campes, abbot of St. John's of Colchester from 1192 to 1237, and made in the chapter house at Colchester, in which one of the witnesses is Walter the Painter,[d] who, I think there can be little doubt, was Walter of Colchester. This is interesting as showing his connection with Colchester Abbey, but I have traced no work that can be identified as his in Colchester or the neighbourhood. He must have become a monk at St. Albans about the year 1200 or a little later, being attracted there, we are told, by brother Ralph Gubion, afterwards prior of Tynemouth, whose family was long connected with the abbey and was well known in the counties of Hertford and Essex. A further attraction

[a] i. 60.

[b] *Gesta Abbatum*, i. 63.

[c] From the time of Paul of Caen, the first Norman abbot, there appears to have been at St. Albans a school of art workers, which excelled principally in the goldsmith's craft. Abbot Richard (1097-1119) fostered this art (*Gesta Abbatum*, i. 69), and in the time of his successor, Abbot Geoffrey (1119-1146), a beautiful shrine was made for the relics of St. Alban by Anketil, a monk of the abbey, who had been goldsmith to the King of Denmark. He was assisted by his pupil, Solomon of Ely (*Ibid.* 83, 86). Master John the Goldsmith or John of St. Albans followed, who worked on the shrine; his son Nicholas was keeper of the mint to the King of Denmark and afterwards served the King of England in a like capacity (*Ibid.* 19, 189). Master Baldwin, who was sacrist of St. Alban's Abbey in 1186, was a renowned goldsmith (*Ibid.* 190). Walter of Colchester, Richard the Monk, and other members of the monastery also practised the goldsmith's art. It may be noticed that several of these artists became monks at the Abbey after they had worked at their arts for some time and had obtained probably the position of master workman.

[d] *Cartularium Monasterii Sancti Johannis Baptiste de Colcestria* (Roxburghe Club), ii. 586. Walter of Colchester is frequently referred to in the *Gesta Abbatum* as Walter the Painter.

must have been the abbot then ruling the monastery, John de Cella, whose appreciation and taste for art were well known. Walter of Colchester appears to have been a friend also of Robert of London, who is said to have gone on that strange mission from King John to offer the kingdom of England to the Emperor of Morocco, which is described by Matthew Paris,[a] and who as a reward for his services was granted the custody of St. Alban's Abbey in 1213. Not only was Walter a painter, but he is said to have excelled also as a sculptor, carver, and as a worker in metals. He is nearly always described as "Master" Walter of Colchester, and as he had pupils and others working under him, he had, we may imagine, obtained the position of a master workman. He was made sacrist of the monastery about the year 1213. Working under him, as his pupils were his brother, Master Simon, Richard, son of Master Simon, and possibly also Alan the Painter, a lay brother.[b] The works at St. Alban's Abbey which Walter executed are too numerous to be set out;[c] principal, however, among them were a great picture, partly of metal and partly of wood, a picture before the altar of the Blessed Mary, and other paintings before other altars,[d] to which reference will be made hereafter.

These works were done in the time of Abbot John de Cella, who died in 1214. The succeeding abbot, William of Trumpington, fully appreciated the work of Walter of Colchester, and desired, it is said, to use incessantly his labour and art while he should enjoy prosperity of life and age,[e] and during Trumpington's abbacy, Walter designed, carved, and painted the *pulpitum* or rood loft in the middle of the church, which stood probably where the rood screen now stands, with its great cross and the Mary and John. He likewise carved a great beam representing the history of St. Alban, and also, as it is said, a most elegant Mariola.[f] Perhaps his most noteworthy work was done outside the monastery of St. Alban. This was the celebrated shrine of St. Thomas of Canterbury, which the prior and convent of Canterbury engaged him to design, and, with the assistance of Elias of Derham, canon of Salisbury, to execute for them. He was present at the translation of the body of the saint on 7th July, 1220, from the crypt of the cathedral church of Canterbury to the newly made shrine.[g] The honour

[a] Matthew Paris, *Chronica Majora* (Rolls Series), ii. 559.

[b] Matthew Paris, *Chronica Majora*, vi. 271.

[c] Records of them will be found scattered through vol. i. of the *Gesta Abbatum* (Rolls Series).

[d] *Gesta Abbatum*, i. 232.

[e] *Ibid.* i. 279. [f] *Ibid.* i. 283, 286.

[g] Matthew Paris, *Chronica Majora* (Rolls Series), iii. 59, and *Historia Anglorum*, ii. 242.

conferred upon him by a rival monastery of selecting him to do this work is a clear indication of the esteem in which he was held by his contemporaries. He died on 2nd September, 1248.[a] Matthew Paris describes him as *præelectus pictor* and *sculptor et pictor incomparabilis.*

Master Simon, his brother and pupil, was married, and does not seem to have taken upon him the religious habit, nevertheless he worked with his brother and his son, Richard, on various paintings in the abbey church and at the great painted chamber of the monastery.[b] We do not know the date of Simon's death, but it probably occurred before 1250. His son, Richard, was a monk at St. Alban's Abbey, and was employed upon painting and goldsmith's work there and elsewhere certainly as early as 1240, as we have a list of his works completed during the nine and a half years previous to 1250.[c] Among the works enumerated are the gilding of the great Cross and the Mary and John over the high altar, some goldsmith's work on the shrine, an aumbry in the church, a superaltar at the altar of St. John, the painting of the great painted chamber or guest hall, some paintings at Wallingford Priory and Hertford Priory, cells of St. Alban's Abbey, some banners and other works. We find also that in the time of Abbot Roger of Norton (1260—1291) he was keeper of the altar of St. Amphibalus,[d] and he may have been the same as brother Richard, warden of the hospital of St. Mary de Pré near St. Albans.[e] Of Alan the Painter we know nothing more than he was a lay brother at the monastery and died in 1245.[f] These were the principal workers, the master painters or *magistri*, as Walter and Simon are usually called, who flourished at the abbey during the greater part of the thirteenth century. We have at the same time references to workers and pupils under these masters, giving, I think, all the essentials for a school or lodge.

Let us attempt to trace any existing work which was executed by this school. We are told in the *Gesta Abbatum Sancti Albani*,[g] under the list of works done in the time of Abbot John de Cella (1195 to 1214), that all the *tabulæ* before the altars of the church (*ecclesiæ*) were painted by the hands of Master Walter of Colchester, Master Simon his brother, and brother Richard, nephew of Master

[a] Matthew Paris, *Chronica Majora*, vi. 271.

[b] *Gesta Abbatum*, i. 232.

[c] Matthew Paris, *Chronica Majora*, Addit. vi. 202.

[d] Cott. MS. Julius D. 3, fol. 27

[e] *Gesta Abbatum*, i. 305.

[f] Matthew Paris, *Chronica Majora*, vi. 271.

[g] i. 233.

Walter, although, it is added, some of these works were done after the time of John de Cella. The entry enumerates seven of the altars and by whom the *tabula* before each of them was painted. It seems exceedingly probable that when these *tabulæ* or frontals were made the mural paintings forming the reredos were added. Again the expression *ecclesia*, as used here, always refers at this date to the nave, and we know that certainly some of the seven altars named, *i.e.* St. Mary, St. Thomas of Canterbury, St. Benedict, and St. Amphibalus, were, at that time, in the nave of the church. After the extension of the church eastward, at the beginning of the fourteenth century, the positions of the altars were very much changed, so that the survey of the church in 1428[a] does not help us much in the identification of the earlier positions of these altars. The conclusion I would suggest is that the seven altars named were those at the Norman piers then standing in the nave, and that the paintings of the crucifixion and scenes in the life of the Virgin now on the western faces of the Norman piers on the north side of the nave were painted at the same time as the *tabulæ* or frontals above alluded to as having been painted by this school. These paintings form a series of pictures which both for effect and interest are not probably to be surpassed. Mr. George Gilbert Scott, in his *Essay on the History of English Church Architecture*,[b] says:

> I can scarcely conceive of anything finer than this series of paintings as viewed from the west end of the church. The great mystery of the Redemption of Mankind preached thus under varying aspects again and again from every pier, produces an impression which no description can properly convey. It is only upon the spot that its dignity can be really felt.

The drawing of these pictures, though conventional and crude, is free. The warm red and brown tints which prevail in them are quite dissimilar from the slightly earlier work found at Ely, Norwich, Durham, and at other churches, where the colours are light and the drawing, though excellent in its exactness, has not the freedom which is to be found at St. Albans. The plaster seems to have been carefully prepared for the paintings, and contains a considerable quantity of hair, a thin layer of finer plaster being applied on the surface. The picture was first drawn out in red to outline flesh and red drapery, and where the drapery is dark the outline is black, the outline of the wood of the crosses is green or brown. The *nimbi* are set out with compasses. The drawing of the

[a] Ridgway Lloyd, *The Altars, Monuments, and Tombs in St. Alban's Abbey in* 1428. Langley, St. Albans, 1873.

[b] P. 109.

figures is poor, particularly the hands and feet, but the pose is good and full of expression. These paintings were probably all whitewashed over at the end of the fourteenth or early in the fifteenth century, as it may be noticed that a fifteenth-century bracket, which we know held the figure of St. Richard in 1428,[a] has been inserted into the middle of the lower picture of the first painting. It is in consequence of their having been covered up that these paintings have escaped the defacement which those on the south side of the same piers underwent in the sixteenth century, when the heads and the upper parts of the figures were scraped off, the usual mode of defacement at that time. They were discovered under the whitewash about 1862, and were reported to this Society by Sir Wollaston Franks on 29th January, 1863.[b]

Mr. Waller, Mr. Keyser, Mr. Ridgway Lloyd, and Mr. Bloxam all agree that the easternmost of these paintings (Plate XVIII. fig. 1) is the earliest, and I think we may add was in all probability by the hand of Master Walter of Colchester. There is a considerable amount of spirit and individuality in the work which is wanting in the other paintings, the treatment being more naturalistic than is usual at the time. These are qualities one would expect to find in Walter of Colchester, who we know stood in advance of his contemporaries as an artist. The upper painting, representing the Crucifixion, has a background of red, or more properly of purple, powdered with stars and five-leaved flowers. In the middle is the cross with the body of the Christ falling forward and the knees drawn up in the attitude of death. The figure has an ample cloth round the loins which is much draped. On the left is the figure of the Virgin standing on a raised mound, and on the right is the figure of St. John standing upon a similar mound. The heads of both are inclined to denote deep sorrow. The lower painting under a trefoil canopy is a representation of the coronation of the Virgin. On the right is the figure of Christ seated upon a throne, his right hand raised in benediction and his left holding a book, having a finely wrought cover. The Virgin is seated on the left wearing a crown, and having an under garment of red and an upper of white. The throne is of a type found in thirteenth-century St. Albans MSS.[c] Under the mounds upon which the Virgin and St. John stand are angels censing.[c] I would place the date of this painting at about 1210. The decoration at the top and sides is probably of a later period.

[a] See *Abbots, etc. in St. Alban's Abbey*, by Ridgway Lloyd, 15, 50, 60.

[b] *Proc. Soc. Antiq. Lond.* N.S. ii. 198.

[c] See Cott. MS. Nero D. I. and other St. Albans MSS.

Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

1 0 1 2 3 4 Feet

ST. ALBAN'S ABBEY CHURCH PAINTINGS ON THE NAVE PIERS.

The other paintings not being so distinctive, it will be as well to take them in their order starting from the west. The upper painting on the west face of the first pier (Plate XVIII. fig. 2) represents the Crucifixion. Christ is on a cross raguly, painted green, around his head is the *nimbus cruciger*, the hair is long and flowing and of auburn colour. The flesh throughout the painting is of an extraordinary dark brown; whether caused by some chemical action or whether it is the pose described by Theophilus,[a] or something similar, used as a ground colour, from which all the flesh tints have disappeared, it is difficult to say. It would seem, however, that the latter suggestion is more probable, as there is now scarcely a vestige of a feature on any of the faces. Our Lord wears a cloth tied round his loins; on the left is the Virgin with a covering like a shawl over her head, and an upper garment of grey tied at the waist, and a brown under garment. St. John, on the right, holds a book in his left hand, and wears an upper garment of red and a lower of grey. His feet are incased in boots. The lower painting of the Virgin and Child is in a very fragmentary condition; the bracket, before referred to, that held the figure of St. Richard, has been inserted into the middle of the picture, the lower part of which has been cut away. The Virgin holds the Infant Saviour on her left arm, and in her right hand a sceptre or lily. Above are two angels censing. A similar rather awkward treatment of the sceptre or lily, but with the position of the hand reversed, occurs in an early thirteenth-century St. Albans MS.[b]

The painting on the second Norman pier (Plate XVIII. fig. 3) represents, as before, the Crucifixion in the upper part. Christ is upon a cross raguly painted green, and has a fully draped red cloth round his loins. The hair is fair or auburn. On the right is the figure of the Virgin with her arms crossed upon her breast, barefooted, and wearing a white under garment with a red robe over it, and round her head is a red nimbus. On the left is the figure of St. John, also with a red nimbus. It may be noticed that this and the painting of the Crucifixion on the third pier (Plate XVIII. fig. 4) are clearly by the same hand; the want of proportion in the length of the leg from the foot to the knee, the drawing of the arms, the arrangement of the draperies, and the pose of the Virgin are alike in both paintings. Poor as the drawing is, there is an immense amount of feeling in the pose of these figures. The lower picture on the second pier, representing the Virgin and Child, has been repainted, and little now remains

[a] Theophilus, *Upon various Arts.* Translated by Hendrie, 1847. p. 5.

[b] Royal MS. 2 B. vi. fol. 12b.

of the painting of either period. The Virgin is seated under a five-foiled arch, the spandrels of which are decorated with an elaborate scroll pattern in white upon a red ground. The arch is supported upon pillars, the capitals of which are, I think, copied from the early thirteenth-century capitals of Abbots John de Cella and William of Trumpington, which fixes the date of the painting between about 1210 and 1235.

Little but the outline remains of the painting of the Crucifixion on the third pier. (Plate XVIII. fig. 4.) The head of St. John is leaning upon his hand in an attitude of deep sorrow. The picture has been repainted, the heads of what is apparently the later painting being seen over the figures now left. The lower painting represents the Annunciation. The figure of the Virgin and the Angel Gabriel are each under a separate arch. The remarks regarding the capitals in the description of the last painting apply equally to those here shown.

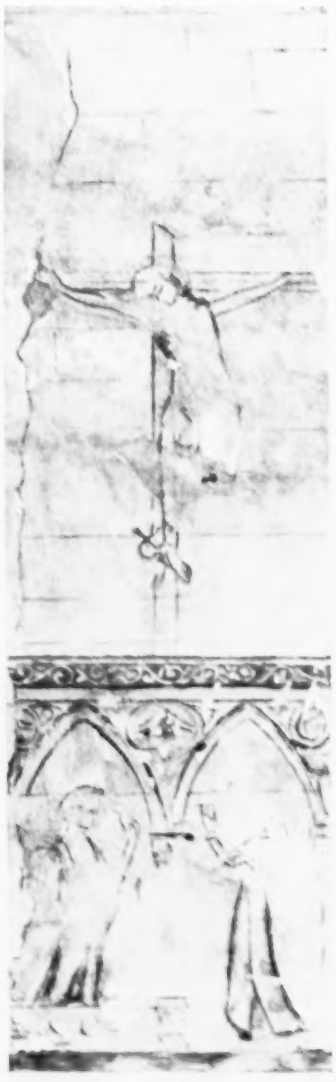
The upper picture on the fourth pier (Plate XIX. fig. 1) shows the Crucifix alone, the outlines only, in black, now remain. The lower painting of the Annunciation is probably by a different hand, and is much the same in treatment as the representation of the same subject on the third pier.

There is another painting of this period in the spandrel of the arch leading from the south transept into the south aisle of the presbytery. It represents an angel wearing a purple garment with outstretched wings in green. (Plate XX. fig. 1.)

Among the other works[a] probably of this school was the lectern or pulpit in the chapter house, which seems to have been a very magnificent structure. On 21st September, 1249, Henry III. issued a writ to Master John of St. Omer to cause a lectern to be made for the new chapter house at Westminster like the lectern in the chapter house at St. Albans, or more beautiful if it could be made.[b] This lectern must have been a most elaborate piece of work, as we find from the accounts for making the copy that it took some time over a year with a staff of from one hundred to one hundred and fifty artizans, including stone dressers, marble workers, carpenters, painters, smiths, glass workers, and plumbers working at St. Albans to complete it. The accounts for making this lectern are very interesting in illustrating the mode of carrying out such a work at that date. The

[a] Mr. George Gilbert Scott in his *History of English Church Architecture*, pp. 119, 120, 121, suggests that the nave ceiling at St. Albans destroyed by Lord Grimthorpe was that erected by Walter of Colchester, but the work on some pieces of the panels which I have seen is not, I think, earlier than the sixteenth century.

[b] Close Roll, 33 Hen. III. m. 3.



ST. ALBAN'S ABBEY CHURCH PAINTINGS ON THE NAVE PIERS.

workmen were all under the direction of Master John of St. Omer and were paid weekly, most of them by wage but a few by piecework. They were joined after a time by Master Peter the Painter, another master of the craft, whose name is well known for his work at Westminster, but he served under Master John of St. Omer.[a]

With the close of the thirteenth century the monks at St. Albans appear to have ceased to work themselves at mural painting, sculpture, or the kindred arts, or to have designed or superintended the erection of the buildings of the monastery. Henceforth the fabric was in the charge of a lay master of the works instead of the sacrist,[b] though there can be no doubt that the designs were influenced by the abbots and other officers of the monastery.[c] The sacrist did not hereafter receive the prefix of Master, nor did he, so far as it is recorded, execute any work with his own hands as the sacrists had previously done. In the place of the brotherhood of art workers, religious and lay, working together upon all branches of art, we have at St. Albans the work continued by laymen specially qualified to execute one particular art. One of the first among these was Master Walter the Painter, who had a house at Bowgate, St. Albans,[d] and who may possibly be identified with the painter of the same name who did so much work for King Edward I. on the great chamber at Westminster and elsewhere between 1285 and 1293, and who, Mr. Rokewode[e] suggests, is the same as Walter of Durham. We know that he had a son Thomas,[f] and we find that a Thomas the Painter had a house adjoining that of Walter the Painter in Bowgate, St. Albans,[g] who, it seems probable, was that son. The earliest reference I have found to Master Thomas the Painter is in a suit against the abbot of St. Albans touching the jurisdiction of the Court Christian, when we find that he was present with Hugh le Teyntur and others in the conventual church while the Court Christian was sitting on Sunday before the Feast of the Purification, 1290.[h] I find he was assessed at the

[a] Exchcq. K. R. Accounts, Works, Bdle. 466 No. 30; Bdle. 467, No. 1; and Bdle. 467, No. 2.

[b] *Gesta Abbatum*, ii. 124, 125, etc.

[c] The works at St. Alban's Abbey executed during the long abbacies of Abbot Thomas de la Mare (1349-1396) and Abbot John of Wheathampstead (1420-1464) were clearly influenced by these abbots.

[d] Cott. MS. Julius D. 3, fol. 48d.

[e] *Vetusta Monumenta*, vi. 27. The evidence in support of this identification does not seem strong.

[f] Exchcq. K. R. Accounts, Bdle. 468, No. 6.

[g] Cott. MS. Julius D. 3, fol. 43d, 48d.

[h] De Banco Roll No. 86 (18-19 Edw. I., Mich.), rot. 22.

borough of St. Albans[a] for the subsidy levied in 1291; and in 1292 he was apparently working under his father at the paintings at Westminster.[b] He was again assessed for a subsidy at St. Albans in 1294.[c] Mr. Rokewode identifies him with the Thomas of Westminster who was living in 1307. He probably died early in the fourteenth century, and left his daughter Ascelin his heir, who inherited his property at St. Albans.[d] Considering that the two painters last referred to lived at St. Albans, it seems likely that they would have worked in the abbey church. No work, however, now existing there can be definitely identified as of their date, unless we may attribute the repainting of the lower picture on the western face of the second pier of the nave and of the two pictures on the third pier to be of the time of Thomas the Painter, but both these paintings are in too fragmentary a condition for the detail to be seen.[e] Having regard to all that has been destroyed since the dissolution of the Abbey it is not surprising that we are unable to connect any existing work with this period. With Walter and Thomas the Painters we lose all evidence of what may properly be called the school of mural painting at St. Albans.

Master Hugh the Painter, or Master Hugh of St. Albans, possibly received his training at the St. Albans School, although we have no record of his working there. We first have reference to him in 1348, when he is described as groom of the king's chamber, and received payment for painting the king's ships, flags, and three hundred pennons, with the arms of St. George for the king's voyage to Gascony.[f] On 18th March, 1350, he was appointed by Edward III. master painter for the work to be executed in St. Stephen's Chapel at Westminster, and he was authorised to take up such workmen as he thought necessary in the counties of Kent, Middlesex, Essex, Surrey, and Sussex.[g] He was working at St. Stephen's Chapel from this date till 1355.[h] The account of the works at Westminster at this date are very instructive with regard to the mode in which

[a] Lay Subsidy, $\frac{120}{2}$.

[b] Exchcq. K. R. Accounts, Bdle. 468, No. 6.

[c] Lay Subsidy, $\frac{120}{3}$.

[d] Cott. MS. Julius D. 3.

[e] The large figures painted on the wall between the windows of the clerestory in the choir may be of this date, but they are so indistinct that it is impossible to speak definitely as to their age.

[f] Exchcq. K. R. Accts., Wardrobe, $\frac{391}{1}$.

[g] Rymer, *Fœdera*, v. 670.

[h] Exchcq. K. R. Accts., $\frac{471}{6}$, $\frac{471}{11}$, $\frac{471}{15}$.

the painting was carried out. In the same way as the grades existed in the Comacine brotherhood in Italy, so they were here. There were four master painters employed at the same time, viz. Master Hugh of St. Albans, Master John Cotton, Master John Barnaby the elder, and Master Barnaby the younger, who each received 12d. a day excepting Master John Barnaby the elder, who had 2s. a day. These master painters received payment for drawing the outlines of the figures in the pictures and doing the more important part of the painting (*pro depictando et protractando protractura imaginum*). The outlines were probably first drawn out in charcoal or chalk, as we have items in the accounts for these materials, which outlines were afterwards painted, in red, black, or yellow ochre. The master painters did not give their services every day, but attended for from two to four days a week. Under the master painters were the working painters, who received from 6d. to 10d. a day, and below them were the novices, or what we should call apprentices, who received 5d. a day for grinding, mixing, and tempering the colours for the others.[a]

Fig. 1. Painting of St. Christopher in the nave of St. Alban's Abbey Church. ($\frac{1}{12}$ linear.)

To the second of the periods above referred to probably, but not to the St. Albans school, belong the paintings on the south faces of the Norman piers in the nave of the abbey church. The first of these from the west end (fig. 1) represents the figure of St. Christopher walking through water in which is a fish. He wears a red garment and bears the infant Saviour on his left arm. The whole painting is very indistinct and fragmentary, and may possibly belong to the fifteenth century. Next to this is the painting of St. Thomas of Canterbury standing under a crocketed canopy with a pinnacle

[a] Excheq. K. R. Accts., $\frac{468}{2}$ $\frac{468}{6}$ $\frac{471}{6}$ $\frac{471}{11}$ $\frac{471}{15}$.

on either side. The whole of the upper part of the figure has been scraped off, but from what remains the saint is shown vested in a red chasuble, white dalmatic, and an alb with square apparel of embroidery in red. His feet are encased in red shoes. In his left hand he carries his cross-staff, and from the arm hangs an embroidered and fringed maniple. His right hand is raised in benediction. It is difficult to see what the object on which he stands is supposed to represent. It is recorded that Robert of Trunch, keeper of the shrine of St. Alban in 1380, caused to be painted the image of St. Thomas,[a] in honour of which saint we know that an altar was dedicated at the rood screen near by.

The next painting, judging by the form of the canopy and pinnacles, was probably painted at the same date as that of St. Thomas. (Plate XIX. fig. 3.) It represents a figure, of which only the lower part now remains, in a long blue or black robe, standing on a red pedestal, holding in its left hand a rosary. The background is covered with tendrils terminating in red four-leaved flowers. At the head of the figure on one side is the letter S and on the other C and a letter resembling an A. Mr. C. E. Keyser suggests that this is St. Cytha or Oswyth, and Mr. Ridgway Lloyd thought it might be St. Dominic.[b] Mr. J. G. Waller thinks that the design like a starfish at the right-hand corner is the painter's mark.[c]

The third of these paintings is entirely in light red, and consists of two figures standing on a pedestal with bare heads and bare feet; the one on the left has a staff in his right hand and a satchel at his right side. (Plate XIX. fig. 4.) The background has a powdering of five-leaved flowers. The painting has been variously supposed to represent Edward the Confessor relieving a pilgrim who turns out to be St. John in disguise, and St. John giving the ring to the pilgrim. As, however, there seems to have been an altar of St. Amphibalus near to this painting, I would suggest that this picture represents St. Alban and St. Amphibalus. In the brass to Abbot John Stoke the figure of St. Amphibalus[d] was represented with a staff in his hand similar to that in this painting.

Of a little later date there is a delightful little painting of St. William of

[a] Cott. MS. Nero D. 7.

[b] *Wall Paintings in St. Alban's Abbey* (pamphlet). The altar of St. Benedict formerly stood on the opposite side to this painting, but it is questionable whether this figure could represent that saint.

[c] *Middlesex and Herts Notes and Queries*, iv. 49.

[d] This figure is now lost, but a drawing of it is given in Gough's *Sepulchral Monuments*. Mr. J. G. Waller suggests that this painting may represent the story of *Quo Vadis*.

Fig. 1

Fig. 3

Fig. 2

Fig. 4

ST. ALBAN'S ABBEY CHURCH WALL PAINTINGS IN THE TRANSEPTS AND CHAPEL OF ST. ALBAN

York in the north-east corner of the chapel of St. Alban. (Plate XX. fig. 2.)[7] The archbishop is represented wearing a blue mitre with a golden band set with gems. The face is well drawn and has an expression denoting sorrow; the hair is wavy and long, and the saint wears a beard. He is vested in a red embroidered amice and a red chasuble, a blue dalmatic lined with red, and an alb with its embroidered apparel in red. He has black shoes on his feet. His right hand is raised in the attitude of benediction, and on his second finger he wears a ring. In his left hand he carries a cross-staff. Below are his arms, *barry silver and gules*, under which is written **Ers Willms**.

In a similar position on the south side of the chapel is the fragment of a painting of another archbishop. (Plate XX. fig. 3.) The figure wears a blue jewelled mitre, an embroidered amice of orange colour, a purple chasuble lined with blue, upon which is an orphrey embroidered with red crosses. The lower vestments are not sufficiently distinct to be made out. From his left arm hangs an embroidered maniple of orange colour fringed with blue, and in his left hand he holds a staff surmounted by a peculiarly large red cross. The background is white, powdered with four-leaved flowers and crescents in red. This painting probably belongs to the early part of the fifteenth century.

It has become the practice to attribute all ills and changes in the fourteenth century to the Black Death in 1349, so that one does not like to burden that epidemic with further delinquencies, yet I cannot help thinking that this dreadful plague, which was peculiarly bad at St. Albans, and also the disputes between the monastery and the townspeople which preceded it for many years, were the causes of the decay and final breaking up of the St. Albans school of painting. The painters of the later mural paintings at St. Albans had, so far as I can ascertain, no connection with the abbey. In the constitutions of Thomas de la Mare, abbot of St. Albans, made in 1351, the monks are enjoined to study, read, write, note, correct, illuminate, and bind books,[8] but nothing is stated as to mural or panel painting or the practising of other arts. The same abbot gave a picture to the monastery to be placed over the high altar which was painted for him in Lombardy, and for which he paid £45 10*s.* 8*d.* He also gave five pictures to the altar of the Four Tapers, and made other gifts, of which the prices are given, showing that they were not the work of the monks. The same remark applies

[7] This painting was found by Rev. Dr. Nicholson, who reported his discovery to this Society on 22nd April, 1852. See *Proc. Soc. Antiq. Lond.* ii. 244.

[8] *Gesta Abbatum*, ii. 333.

to all the artistic work done in the abbey after 1350, and there seems to be little or no evidence that any monk painted the walls of the abbey, *proprio manu*, as is repeatedly stated to have been done in the earlier periods. When possible, skilled masons were induced to become lay brothers, but I cannot find that there were any mural painters, except Alan before referred to, among the names of the lay brethren that have been handed down to us. Although the prices paid for the paintings are carefully preserved, the names of the painters are unfortunately omitted.

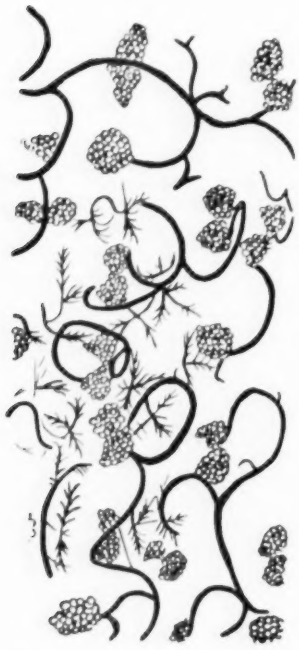


Fig. 2. Vine pattern in north transept window of St. Alban's Abbey Church.

It would be tedious to set out a list of the later pictures recorded as having been painted for the abbey. I will therefore only refer to those now existing. First with regard to the painted ceiling over the choir called the *Te Deum* ceiling. This consists of sixty-six panels in eleven rows, which, excepting the two middle panels representing the Coronation of the Virgin, alternately contain the Greek monogram ιηc within wreaths of vine leaves, and an angel holding a shield of arms, having over his head a scroll bearing a passage from the *Te Deum* or some anthem. This ceiling has been so ably described by our Fellow, Mr. J. G. Waller,[a] that it is needless for me to say more than that Mr. Waller attributes the date of the painting to be about 1410, with the exception of the two centre panels of the Coronation of the Virgin, which he thinks are a later insertion of about 1444, to commemorate the coronation of Margaret of Anjou. Mr. Waller suggests that the series of arms represents the family connections of Edward III., but I think it is more likely that they represent the benefactors to the abbey; indeed the shields largely refer to the persons mentioned in the *St. Albans Book of Benefactors*.[b]

The splays of the Norman windows in the north front of the north transept are decorated with a vine pattern (fig. 2), and there is a fragment of a coloured frieze with a curious dog tooth design on the south wall of the presbytery.

The remaining paintings almost all belong to the time of Abbot John

[a] *Archæologia*, li. 427.

[b] Cott. MS. Nero D. 7.

Bostock or John of Wheathampstead (1420-40, 1451-64), one of the greatest patrons of art of his day. To the very beginning of his long abbacy probably belongs the upper of two paintings of the History of the Resurrection. The picture now left, called the Incredulity of St. Thomas (Plate XX. fig. 4),* is getting into a very bad state owing to the damp coming through the plastered wall. It represents Christ standing and holding a cross staff with the vexillum in his left hand, and with his right directing the fingers of St. Thomas to the wound in his side. St. Thomas is kneeling on the left-hand side and wears an undergarment of green and an upper of red. The two figures are within a pinnacled building having trefoiled arches. The painting is done with accuracy and care, the perspective being carefully drawn.

In 1438 Abbot John of Wheathampstead caused the Lady Chapel to be newly painted, and there are some slight remains of this work yet existing on the south wall, but they are too fragmentary to be made out. The painting of the wooden vaulted ceiling of the presbytery, which is also the work of the time of this abbot, has a ground colour of blue, with medallions, containing alternately the Holy Lamb and the Eagle of St. John in gold, the cognizances of this abbot, surrounded by a design of leaves, the whole giving a very fine effect.

In conclusion I should like to remark that the whole of these paintings were a little while ago getting into a very bad state. If anyone still thinks that varnish will preserve mural paintings let him visit St. Alban's abbey church. The paintings in the nave were sized and varnished about the time of their discovery. The heat from the gas had dried the varnish, which was flaking off, carrying with it the colour from the pictures. Under the advice of our Fellow, Professor Church, F.R.S., I tried one or two experiments on the paintings, and eventually I applied a specially prepared size, warm, to the flakes of varnish which was sufficient to soften them, and by dabbing them I was able to carry them back into their places. It was rather a trial of patience, but the result has so far proved satisfactory. On the few paintings which had not been varnished I sprayed a

* The inscription below the painting, now almost obliterated, is given by Mr. Ridgway Lloyd in his paper on the paintings before referred to. It is taken from the prayers after Mass in the Sarum Missal, and is as follows:

Mors tua, mors Christi, fraus mundi, gloria celi
Et dolor inferni, sint memoranda tibi
In cruce sum pro te; qui peccas, desine, pro me;
Desine, condono, pugna juvo, vince, corono.

solution recommended by Professor Church[a] for renewing the lost medium used with the paint, and which brings out the colour, which has been satisfactory.

I should like to take this opportunity to express my thanks to Professor Church for the trouble he took in helping me to preserve these paintings. I have also to express my most sincere thanks to Miss Monica F. Gray for the very careful copies to scale of the paintings, which she has kindly prepared, without which my paper would have had but little interest.

[a] See Report by Professor Church to the Committee of the Society for the Protection of Ancient Buildings.

XI.—*The London Charterhouse and its old water supply.*

By W. H. St. John Hope, *Esq.*, *M.A.*

Read 1st May, 1902.

It is written in the fifth volume of the Minute Books of the Society that on Thursday, 1st May, 1746:

> Mr. Birch brought an old draft in a Parchment Roll done in the year 1511 of all the Stone-Wells then at Clerkenwell. This Mr. Vertue was desired to take home and give some account to the Society the next meeting: the Roll is the property of Francis Godolphin, Esq.

Mr. Vertue was apparently not able immediately to carry out the wishes of the Society, and it is not until Thursday, 28th January, 1747, that we meet with a further entry in the minutes:[a]

> M^r. Vertue bro^t a Drawing for the Society with the ffollowing Note; Sometime past this antient Role was brought to this Society, by the Revern'd M^r. Birch, desireing that somebody would consider it, in order to explain of what place, or view it is. It was put into the hands of M^r. Vertue; who has discover'd it to be a Survey of the Wells, waters of S^t. John's Clerken Wells, and those belonging to the Charterhouse London with a Veiw or Plan of their House, as it was, with the Cells and Chapter House. A Copy of it is here represented according to this antient original, there being no remains of this House, but this Shadow.

Vertue's drawing, which is still among the Society's Collections, represents only a part of the original, and a note on it in Dr. Stukeley's handwriting explains: "This old Role contains four Skinns of Parchment of which this Coppy is about half." The note continues: "the Role it Self is lately got into the possession of . . Man Esq^r. Master of the Chartreuse. A^no D. 1747." The account of the

[a] Vol. v. 167.

restoration of the roll to its ancient resting place at the Charterhouse is, however, more fully recorded on the back of the original:

> Given us by the Hon^ble^ Francis Godolphin Esq^r^. 1748. Given to the Hospital and lodged in the Evidence House 1767 by Samuel Salter Master into whose possession it came from the estate (?) of Nicolas Mann Esq. Master who died 1753.

The original roll is now in the custody of the Rev. W. Haig Brown, LL.D., as Master of the Charterhouse, who has most kindly allowed it to be again exhibited to the Society, together with a later duplicate copy which has been preserved with it. This duplicate apparently was not shown to the Society in 1746.

The two rolls were exhibited to the London and Middlesex Archæological Society on the occasion of its visit to the Charterhouse in 1867, and subsequently formed the subject of a paper by the Ven. Archdeacon Hale in the *Transactions* of the Society for October, 1869.[a] They are there correctly described as showing the plan of the course by which water was brought from Islington across the fields for the supply of the monastery of the Charterhouse.

The London Charterhouse was founded in 1371 by Walter lord Manny, K.G., seemingly at the suggestion and perhaps by the help of Michael of Northburgh, bishop of London, who by his will made four months before his death in September, 1361, bequeathed the sum of £2,000 "to found, build, and complete, as soon as my executors can do it, a certain house of the Order of the Charterhouse according to the site and manner of the same Order in the place called 'Neuchirche hawe,' where there is a church of the Annunciation of the Blessed Virgin Mary, which place and the patronage of the same I have acquired from Sir Walter Manny, knight." He also left to it certain ornaments when it should be finished, and bequeathed his patronage of the place and every right that he had or could have in it to his successors the bishops of London, praying them to supervise and overlook with diligence the ordination of the said house, and the making, building, and completing of the work.

There is no record of anything having been done to carry into effect the bishop's wishes, and Newchurchhaw seems to have reverted to the possession of Walter lord Manny, who on 6th February, 1370-1, obtained the royal licence to found there, *in solo suo proprio*, a house for monks of the Charterhouse.

The reason for the foundation as recited in Lord Manny's charter, which is dated 28th March, 1371, is sufficiently interesting to be quoted in full:

[a] Vol. iii. 309-331.

"Since there was lately a pestilence so great and violent in the city of London that the cemeteries of the churches were unable to suffice for the burial of persons dying of the same pestilence; being moved by piety and having regard to the danger and loss which at such a time has happened because there was not hallowed burial for the aforesaid dead and considering the need of pity on this account, of our special devotion, we have acquired thirteen acres and a rood of land without the bar of West Smithfield of the same city in a place called *le Spittle Croft*[a] but now called *le Newe Cherch haw* for the burial of the abovesaid persons and we have caused the same place to be hallowed by the venerable father Ralph then bishop of the same city, in which place more than 50,000 persons dying of the said plague have been buried, and afterwards for the devotion which we had to God and his sweetest mother the Blessed Virgin Mary and specially at the feast of the Annunciation of the same blessed Lady Mother and Virgin, on which feast was the beginning of the restitution of joys that had been lost by the prevarication of our first parents, we have caused to be built in the same place a chapel in honour of God and of the said feast of the Annunciation of the Blessed Mary Mother and Virgin.

"And because we desire that according to our ordination devout prayers and divine services according to the form following may perpetually be made and continued in the same place, and that above all other religious we have a special devotion for the holy religion of the Order of the Charterhouse; therefore know ye that for the reverence and honour of God and of his most holy Mother and Virgin Mary and for the devotion which we have for the said feast of the Annunciation, and the affection too which we bear to the abovesaid holy religion, we by these our presents found and make a house of monks of the same Order in the place abovesaid which we call and will to be called in future the Salutation of the Mother of God in honour and perpetual memory of the blessed Feast aforesaid."

The founder proceeds to endow the new Prior and Convent with the thirteen and a quarter acres of ground that form the site, with the aforesaid chapel and all other buildings erected there to be built for their indwelling. He also gives them three acres of ground lying without the walls of the said place on the north for their indwelling aforesaid. This appears to be the plot called "No Man's Land," acquired in 1348 or 1349 by Bishop Ralph to serve as a burying ground for those who died of the Black Death. In it he built a chapel known

[a] It was so called because it had belonged to St. Bartholomew's Hospital, from whom Sir Walter Manny bought it.

as Pardon Chapel, from which the cemetery obtained the name of Pardon Churchyard.

The founder concludes by ordaining special remembrances for the good estate of his King, and of himself, his wife Margaret and their heirs, and the Bishop of London for the time being, while living, and after death for their souls and the souls of others, especially of Master Michael of Northburgh, formerly Bishop of London, and his successors, and of all whose bodies are buried in the place aforesaid.

Of the bishop's share in the foundation Manny unaccountably says nothing. We learn, however, from a bull of Pope Urban VI., granted to the Prior and Convent of the London Charterhouse, in 1378, that Bishop Michael "of good memory," was regarded as a joint founder with Sir Walter Manny in establishing a double convent of monks of the Charterhouse in Newchurchhaw.

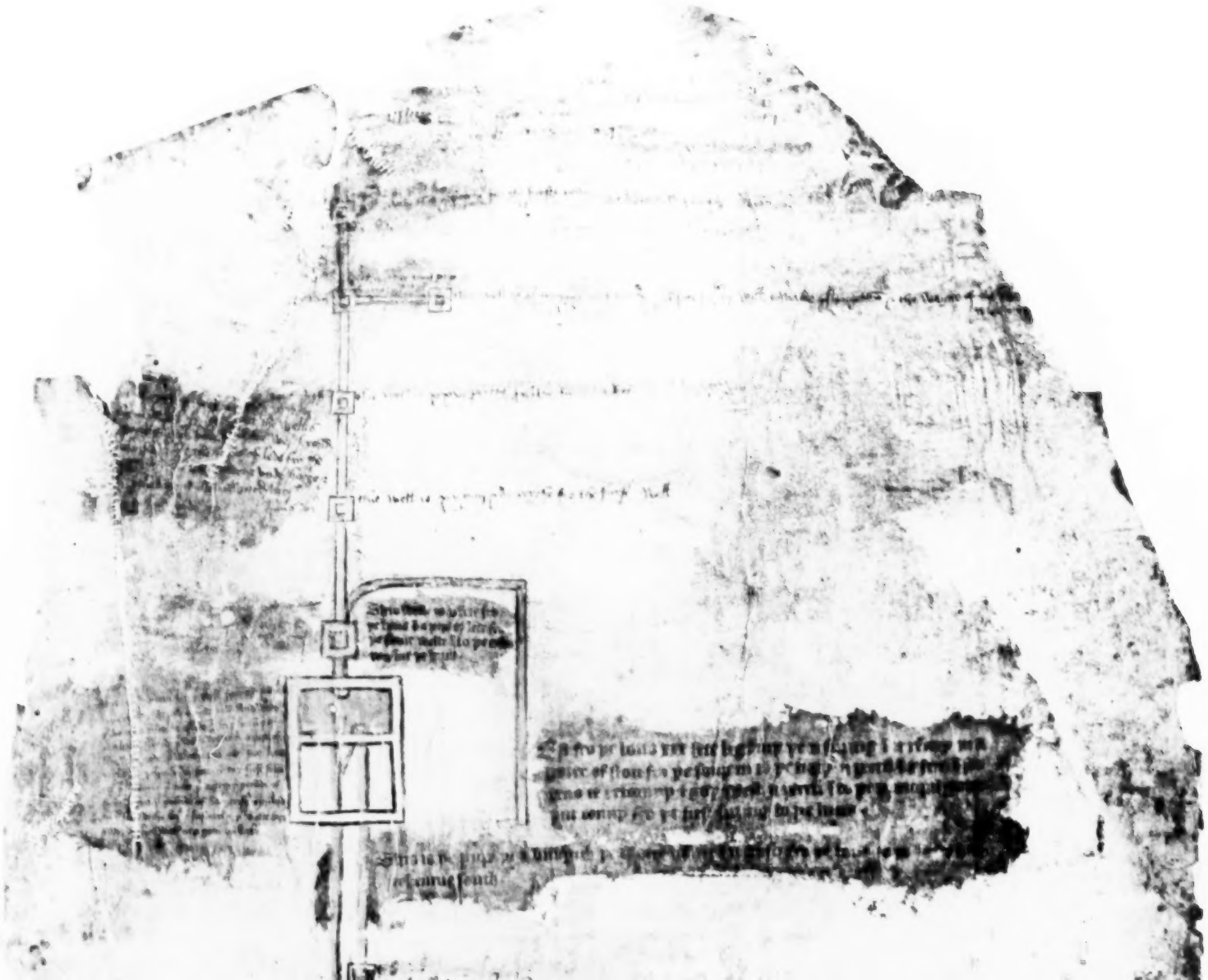
How the monastery was at first supplied with water is not recorded, but probably wells sufficed to begin with. It is doubtful whether any regular service was attempted while the buildings were in progress, and a gift of 260 marks in 1378

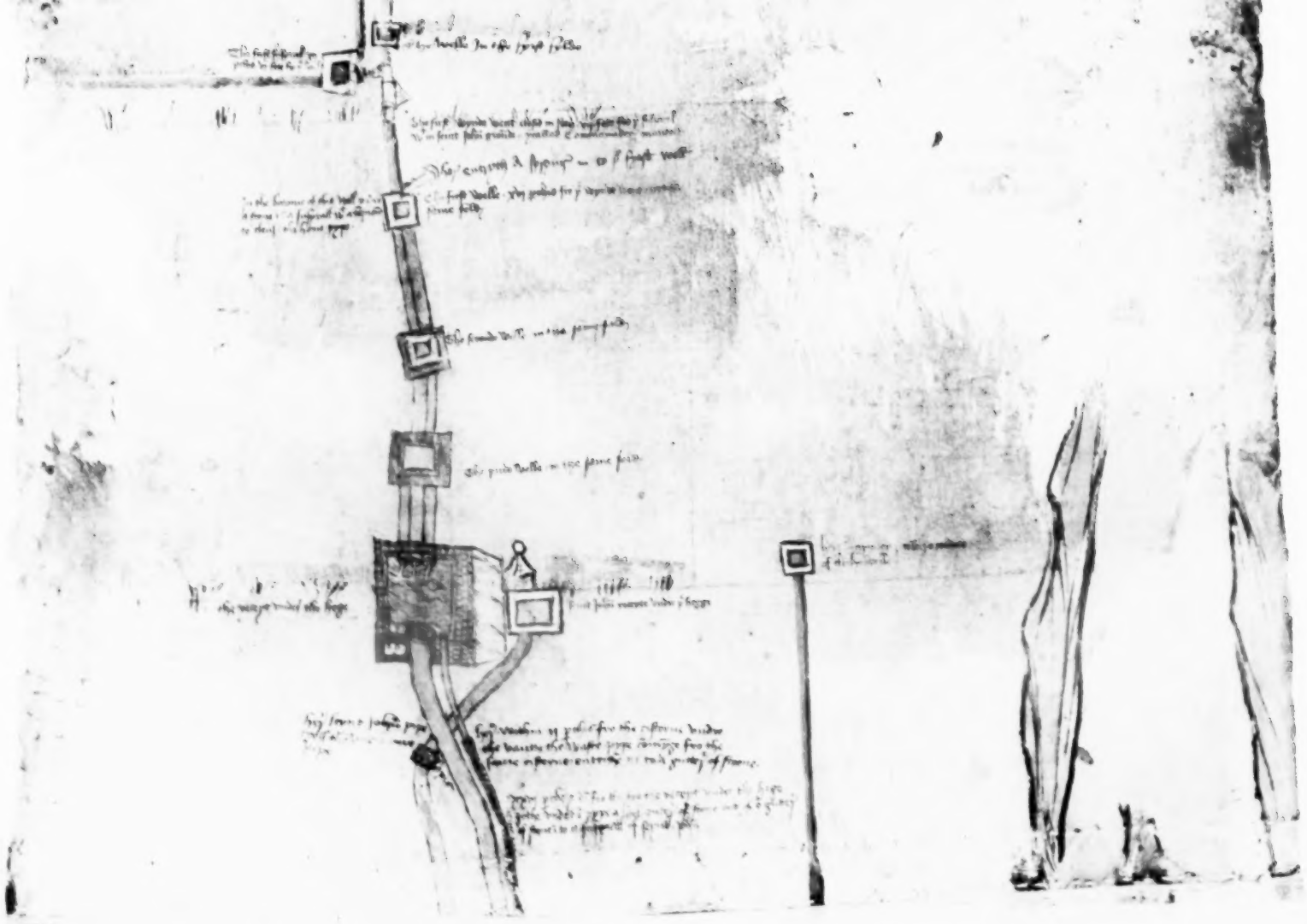
> ad construendam seu ædificandam unam cellam cum porcione claustri et gardini competenti pro eadem et ad dotandum unum monachum qui habitabit in eadem cella,[a]

as well as a grant of land enlarging the site for the building of other cells, shows that the monastery was not then completed.

The provision of a regular water-supply was not begun until 1430. All the documents relating to the transaction are fortunately extant, and from them we learn that John Feriby and Margery his wife were empowered to grant to the Prior and Convent of the Charterhouse a fountain or spring and a portion of land 53 perches long and 12 feet wide in the vill of Islington, and the Prior and Convent to receive the same, and to make a subterranean conduit from the spring aforesaid through the said land and under the royal way as far as their monastery, on payment of 12d. yearly to the aforesaid John and Margery and the heirs of the said Margery. The springs were situated in the place called Overmead, in the manor of Barnersbury, then in the possession of John Feriby in right of his wife, who was the daughter and heir of Sir James Berners, knight. From the Barnersbury boundary to the king's way the conduit passed by arrangement through land belonging to the Priory of St. John of Jerusalem at Clerkenwell, and beyond the road through land belonging to the nuns of Clerkenwell and

[a] Thomas Madox, *Formulare Anglicanum* (London, 1702), 267.





MAP OF THE OLD WATER SUPPLY OF THE LONDON CHARTERHOUSE [m. 1]
Reduced

Published by the Society of Antiquaries of London, 1904

another field belonging to the Prior and Convent of St. John's, called Whitwell beach meadow.

The subject of the water-supply of English monastic houses has been so fully and so lately dealt with[a] by our Treasurer, Mr. Philip Norman, in his interesting paper, printed in *Archaeologia*,[b] on an Ancient Conduit-head in Queen Square, Bloomsbury, that I need not enter upon it again here.

Mr. Norman's paper, it will be remembered, refers mainly to the water-supply of the Greyfriars Monastery in London, the course of which, from the existing conduit-head at Bloomsbury to the monastery itself by Newgate, is so carefully described in the chronicles of the house. The special reason for so careful a record is given in its headline: *ut sciatur posicio canalium aqueductus*, "that the position of the pipes of the aqueduct may be known."

The monks of the Charterhouse also placed on record the course of their water-supply, but in an entirely different way, in the form of an elaborate pictorial plan with explanatory notes; in much the same fashion as the monks of Christchurch, Canterbury, did in the twelfth century, when their water system was remodelled under Prior Wibert. The plan also depicts the sources of the water supplies of the Priory of St. John of Jerusalem and of the Clerkenwell Nunnery, which had already been tapped; the monks of the Charterhouse had therefore to seek for their supply further to the north.

The original roll, which is of vellum or parchment, is 9 feet 11 inches long and 1 foot $8\frac{1}{2}$ inches wide, and is made up of four membranes, measuring respectively $30\frac{1}{2}$, 31, $28\frac{5}{8}$, and $32\frac{1}{4}$ inches, stitched together with an overlap of about 1 inch. (Plates XXI.-XXIV.)

The copy, which is on stout parchment, is somewhat broader than the original, being from 23 to $23\frac{1}{2}$ inches wide, and is now only 8 feet 9 inches long. Like the other it was made up of four skins, but the fourth is lost. The remaining three measure 34, $37\frac{1}{8}$, and $37\frac{1}{4}$ inches in length respectively, and are sewn together like the other roll.

The first membrane of the original (Plate XXI.) has suffered mutilation at the top and down the left side, but the rest of the roll is complete.

The drawing on the roll, which is in ink emphasised by colouring, represents, first, a series of wells, as they are called, and springs, connected by a stone gutter conducting the water to the first receipt. From this the water passes on through a further series of wells by means of a lead pipe with a gradual increase of volume, so that the pipe is first doubled and then trebled before reaching the

[a] In 1899. [b] Vol. lvi. 251-256.

second receipt. It is continued thence without further interruption to the conduit or fountain in the middle of the great cloister of the monastery, from which it is distributed to the various buildings.

In order to show clearly the exact course of the pipe, which throughout is from north to south, the drawing also shows the lines of the roads and other physical features near or through which it passed, as well as the relation to it of the pipes and receiving houses of the other monasteries which obtained their water from the same gathering ground.

The course of the pipes is accompanied throughout by an interesting series of notes descriptive or explanatory of their position and adjuncts. These notes are the work of several hands, and have apparently been added from time to time, as necessity required, to mark alterations or additions. To render them the more legible these notes have at one time been treated with some chemical which, if it has preserved the writing, has somewhat disfigured the appearance of the roll with large patches of brown stain, and made it exceedingly difficult to photograph.

The first and most important set of notes contains the original explanations of the course and arrangement of the pipes. These notes are written in two hands, a bold and neat text hand, and a neat but smaller script hand. For distinction these may be called hand A and hand B.

It is evident from a careful examination of the head of the roll that all the earlier notes were in the bold text hand, but these have for the most part been erased, and another series written in in quite a different hand. For convenience this may be called hand C. The date of these alterations must be subsequent to 1512.

Additions in other hands will be noted in the description of the roll.

The drawing seems to have begun, according to the copy, with a square to represent the first well. From this started the watercourse, which is denoted by a narrow stripe coloured blue.

The original note in hand A is completely obliterated, and that written over in hand C is now only partly legible and in part torn away, but with the aid of the copy it can be read as follows:

[Thys well ys a large well and] when it shall be openyd for the cl[ensynge of y^e^ same yt muste be opennyd oñ the syde] towarde London & the hous of stone the whiche rec[eavythe the water of the same well and of the other] wellys & spryngs betwyx the same well & the samẽ hous of stone [worke in a gutter of stone]

Against the well, the copy tells us, was written, probably in hand B, "fons j^{9}."

The well was evidently therefore a small covered tank fed from an adjoining spring.[a]

Just below the first well a short branch enters the gutter from the north-east. An explanatory note, in hand C, says:

This sprynge enteryth into the gutter of stone that comythe fro the fyrst [well] by [the space of ij perches and di]

A little below is "fons ij^{9}" [c], denoted by a square set athwart the gutter. Against it is written, in hand C, over an erasure of a note in hand A:

this well is ix perche fro the furste well

Of the erased note there may be read the final words ". . . . . perches fro þe hous," which suggests that whereas the dimensions in the second hand are measured from the first well, those in the first hand were measured from the house.

Another note in the first hand followed, but is hopelessly erased. Over it is written apparently in hand C:

tante agatur in ostensione hujus carte extraneis

We next come to "fons iij^{9}" [c], with the note [c]:

This well is xvij pche fro the furst well

From it a branch gutter strikes at right angles eastwards to another well "fons iiij^{9}" [c], with the accompanying note [c]:

this well is opynnynge is j perche & di fote fro the iij well towarde yslyngtoñ & the wantte of the sam[e well gothe towarde þ^{e} stone þ^{t}] which app[erythe above the grounde][b]

The next well, "fons quintus," has both its number and note written over in hand C an erased note of hand A:

this well is xxvj perche fro the furste well

The erased note ended with the words ". . . . of þe hous."

The note to the next well, "fons vj^{9}," is:

this well is xxxiiij & di perche fro the furst well

On the left or west side of the gutter, between wells 5 and 6 is the following memorandum in hand C:

In the yer' of lord m[cc]ccc & xj^{o} & in the next yer' followȳg all the wellis & stone

[a] These wells or *fontes* seem to have served as settling tanks before the water reached the head conduit.

[b] The parts in brackets are torn away and supplied from the copy.

gutters a bove the hous wer serchid & clensid & all the pipis of lede fro the hous unto the new cisterne under the hegge & [xxx]ij ꝑche beyond homeward wer newe made & leyde

Along the west side of the gutter is written in a different hand from any of the foregoing:

fro the fyrste well unto the howse of recete muste be breeke

On the left of the gutter this note is also written in the same hand:

xiij perches fro the laste well a greate pyepe off lede kepe the other pypes in course yf the home pype (shal?) be stope

Neither of these notes occurs in the copy, which must therefore have been made before they were added.

The well south of "fons vj^{s}" is of larger size than those north of it and is accompanied by the following note in the original hand:

This well is v fete fro ꝑe hous & a pipe of lede fro ꝑe same welle i to ꝑe cist'ñ wiꝑine ꝑe hous

Into this well ran the contents of another spring by a channel coloured a deep blue, the position and direction of which are described by the following original note:

Est fro ꝑe hous xxx fete begȳniꝑ ꝑe v spring & it rēnyꝑ in a goter of ston fro ꝑe souꝑ in to ꝑe norꝑ. ij perch & x fete. & fro ꝑens it retornyꝑ and goꝑ West ij perch i to ꝑe principal goter ꝑat comiꝑ fro ꝑe first spring to ꝑe hous.

The mention in this note of the fifth spring suggests an inquiry as to the other four.

Besides the well into which the water of the fifth spring ran, the drawing now shows six other wells, and one spring between the first and second wells. Out of these eight springs it is impossible to make only four.

The explanation becomes evident on a careful examination of the roll; namely, that all the original first portion of the watercourse, with its wells, springs, and notes, appears to have been erased and re-drawn.

In the new drawing the gutter is differently tinted and the wells are smaller and more neatly drawn. The spacing of the erasures also shows that the original wells were fewer in number, and the sixth well and its note, and the note to the fourth well are clearly additional where nothing was written before.

In the present state of the roll it is not possible to say what the first arrangement precisely was.

The rearrangement of the wells and springs was perhaps due, either to a demand for an increased supply, or to a necessary increase in the number of sources through the gradual failure of the original springs.

The "house" to which reference has been made several times is immediately to the south of the last described well, and as we shall see presently can be identified with the well-known White Conduit of later times.

It is shown on plan only, as an oblong building standing north and south, divided unequally by a cross wall. The smaller and northern half is coloured blue and was the cistern or reservoir. The lead pipe from the last well discharges itself into this through a perforated rose. From the cistern issue two pipes: one from the middle of it; the other from the south side with a perforated head.

Against the house is written, in hand C, the following interesting description of it:

This hous stondith fro þ^e^ first spring sou þ^e^ lyne ryght xliij pchis [& an half *crossed out*] and w^t^in þe hous is a cisterne of lede & in þe bottũ þ^y^of is a hole to awoide þ^e^ waste watir bi a pipe of lede whan nede is whiche pipe goo þ^e^ sou þ^e^ lyne right xij pchis & .vj. fete. in to þe first suspirel þ^t^ stondiþ in þe diche þ^t^ deptiþ þe groũde of seint John & þ^e^ groũde of barnerisbery. and in þe same diche bo þ^e^ þ^e^ suspirel & þ^e^ waste pipe awoyde ther wat' in a gotir of breke

The waste pipe is continued southwards a short distance from the conduit house, and has written along it (in hand B) "þe waste pipe." It then runs into a large square receptacle tinted light blue, with a centre of darker hue, described (in hand B) as

The first suspirel . xij pchis . vj fete fro þe hous

From the west side of this suspiral[a] issues a strong blue stripe which is continued at right angles to the former course of the pipe to the margin of the roll. Along this section is written, upside down, in hand B:

The goter of breke for þe waste wat'

[a] A suspiral was no doubt in the first place a vent or breathing-hole (*spiramen* or *spiraculum*) to let the air out of a conduit, to avoid a supposed danger of the pipes being burst by the compression of the air within; and in that sense the *Promptorium Parvulorum* has "Suspyral, of a cundyte. *Spiraculum vel Suspiraculum.*" (At Durham the word was shortened to "susper.") But in the drawing under notice the suspirals seem to have served the further purpose of settling tanks, and as a means of relieving the pipes from the pressure of the water. This must have been considerable, there being a fall of about 64 feet from the White Conduit to the distributing cistern in the great cloister of the Charterhouse, a distance of almost exactly a mile.

The supply pipe which issues from the conduit house is labelled, in hand B, "þe home pipe." It is also accompanied by a note in the bold original hand:

This is þe pype þat bringith þe watir home & it goith fro þe hous to þe first suspirel evene south.

A little below this note another small well, clearly an addition, is drawn athwart the pipe, with the note in a new hand:

The welle In the fyrst fylde

Immediately below it the pipe throws off a curved branch to the suspiral on the west, and then enters a small building with a gabled roof, apparently all of stone. On this line there is drawn across the left hand half of the roll a rude semblance of a hedge. The ditch of this was on the north side, and in it was a brick gutter into which the suspiral and the waste pipe voided their water.

Here then we leave the ground of Barnersbury granted by John and Margery Feriby, and enter upon ground belonging to the Priory of St. John of Jerusalem at Clerkenwell. The dimensions thus far do not agree with those of the grant, the length of the 12-foot strip being 53 perches or 874½ feet; whereas the distance from the first spring to the conduit is given in the roll as 43½ perches and to the suspiral 12 perches and 6 feet further, that is 921¾ feet or 47¼ feet more, exclusive of the length of the conduit. These dimensions, however, belong to the alterations of the roll, and may differ from those originally written thereon through the readjustment of the first sources, as suggested above.

On leaving the small building the home pipe is shown with a round grating over it. The whole arrangement is described in a note in hand B:

The first wynde went[a] closid in ston .vij. fete fro þ^e^ suspirel w^t^in seint Johñ groũde. ycalled Commaunderȩ mantell

Below this note is an added line, apparently in hand C:

Her' entryth a spryng in to þ^e^ fyrst well

with a short branch pipe rudely drawn. The well itself is shown as a square, coloured in two tints of blue. On the right is the note:

The first welle. xvj pchis fro þ^e^ wynde went in the same feld

and on the other side:

In the botome of this well undir a stone is a susprall w^t^ a tãpioũ to clense the home pype.

[a] "Wind vent" here seems to be applied to what in other places would be called a suspiral. See note on preceding page.

From the first well the pipe is doubled as far as the next, which is entitled:

The seconde welle in the same feld

and so on to the next, which is drawn of larger size and entitled:

The þirde welle in the same feld

From this the pipe becomes triple to the second conduit. This is placed on another line of hedge, and described as:

the receyt under the hege

This is written in hand C, over an erased note of four lines in hand B.

The "receyt" or conduit house is shown as an oblong structure of red brick with a gabled roof coloured light green (which covered a stone or brick vault), and a small door in the south end. The west side is omitted so as to show the plan of the reservoir, which completely filled the interior. The three pipes are discharging water into it from the north, while from the south issue an enlarged home pipe with perforated head and a small waste pipe. In the bottom of the pool is a large plug or tampion for drawing off the water for cleansing purposes. The erased entry no doubt described all these features.

Immediately to the east of the "receyt" is a smaller square tank full of water, which was evidently roofed over, described (in hand B) as

seint Johñ receyte undir þ^e^ hegge

Still more to the east is another square cistern inscribed (also in hand B):

here bigynneþ þ^e^ nönys condite of clerkynwelle.

From it a dark blue pipe extends in a southerly direction.

On the right hand side of the roll is shown a highway bordered with green.

Immediately below the large conduit house, or "cistern under the vault," as it is called, the Charterhouse home pipe and the St. John's pipe cross one another, the latter being the lower. A stone inscribed "lapis" marks the place, as well as the note (in hand C):

her' seynt Johñ pipe crossithe undir our pipe

The two pipes then continue for some distance side by side. The waste pipe crosses St. John's pipe with the home pipe and runs parallel with it for some way, but under different conditions, which are explained by a note (in hand C):

her' within ij þchis fro the cisterne undre the vautte the waste pype cömÿge fro the same cisterne. entrithe in to a gutter of stoone.

This gutter is nevertheless tinted red as if of brick.

Under the note just quoted is another, written by the same hand but at a different time:

xxvj pche & dī fro the fro the [*sic*] receyt under the hege gothe under o^{r} pype a litel guter of stone oute of o^{r} gutter of stone ī to a suspraⁿ of seynt Johñ

This, however, is not shown in the drawing.

The main gutter continues a little distance further and then passes under the home pipe and runs on between it and St. John's pipe. (Plate XXII.) The change of position is marked by the note (in hand C):

the gutter of stone is on the este syde of our pipe. & at xxxv perche fro the cisterne undir the vaulte it turnythe to the weste syde of our pipe.

The pipes and the gutter run side by side for some way further, and then the gutter and St. John's pipe turn to the south-west, the home pipe going straight on. A series of interesting notes occur here. First the change of direction is recorded (in hand B):

here at þ^{e} ston deptiþ seint Johñ condite from ourys*

Outside the bend of the gutter is drawn a large stone with the note (in hand C):

a cxxxviij pche fro the hous þ' stande a stone on the weste syde of our pipe & ther' deptith the gutter.

The St. John's pipe is carried on to a building drawn in plan, like that at the head of the roll, entitled (in hand B):

The first hous of seint John condite

Above it is a double barred cross.

The supply pipe goes on to another building roughly drawn in outline only, entitled (in hand B):

The seconde hous of seint Johñ condite

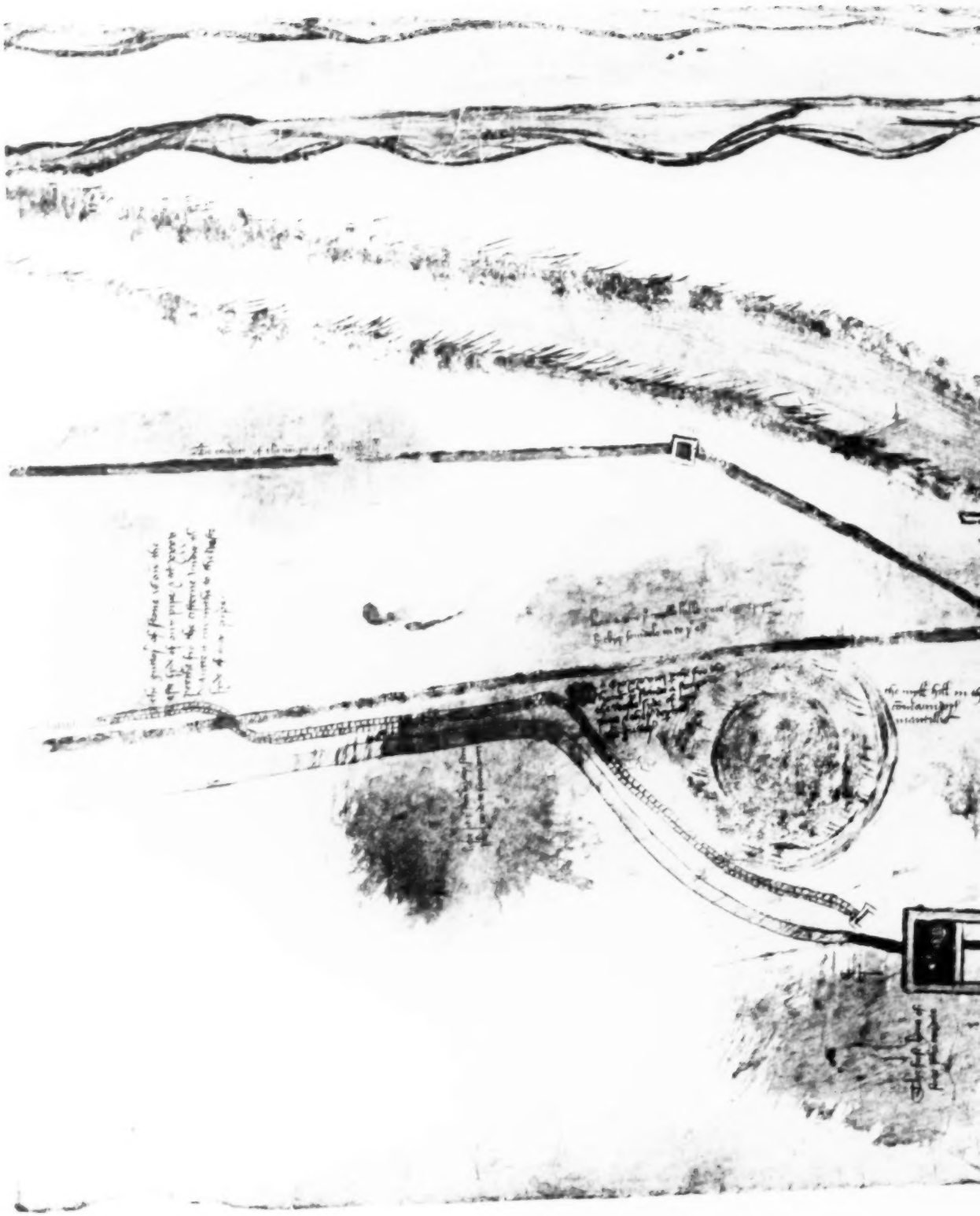
but after continuing a little way beyond it ceases, as of no further consequence.

The stone gutter extends beyond the departing stone nearly as far as St. John's first conduit house and then ends.

The Charterhouse home pipe, although shown as straight, seems to have actually changed its direction too at the departing stone; there being written along it (in hand B):

here a ȝens þ^{e} mylle hille oure home pipe brekyþ somdele in to þe est.

* Above this note a much longer one has been crossed out and then erased.



MAP OF THE OLD WATER SUPPLY OF THE LONDON CHARTERHOUSE (p. 2)
Reduced

The mill hill was apparently the cause of the separation of the pipes. It is shown as a round mount, with an encircling ditch and hedge, but without the splendid windmill depicted in the copy. A note in hand C describes it as

the myll hill in the cõmaunderȩ mantillis

which, as we have already seen, is the name of the fields which the pipes traverse.

We must now return to the nuns' conduit. This extends southwards from its source for some way, its identity being made plain by the inscription:

The condite of the nõnys of clerkynwell

as far as a small square cistern lettered "petra," probably to indicate its material. The pipe then deflects south-west to a second cistern inscribed (in hand B):

þᵉ receyte of clerkynwell condite

Close to this the pipe passes under the Charterhouse pipe, a fact recorded by the note (in hand B):

xx
here iiij. &. xiij. pchis fro þᵉ wynde went by seint Johñ receyte undir þᵉ hegge þᵉ home pipe crossiþ þᵉ condite of clerkynwelle

The latter is also described as

þᵉ pipe of clerkynwelle goyng undir oure home pipe

It extends a little further and then ceases. Both it and the St. John's pipe were intended to be continued in the drawing, the former in its south-westerly direction, passing under the latter, which was going south. They are, however, not carried beyond the second membrane.[a]

A little below the head of the nuns' conduit the highway bordering the roll forks: one line continues south along the edge of the roll; the other gradually bends round in a south-easterly direction. Its identity is established by the inscription (in hand B):

The hygh wey from Iseldon toward london.

Near the receipt of the Clerkenwell conduit is a gate in the hedge which lines the road, inscribed:

Porta in pratum domus sancti Johannis

[a] The course of the St. John's pipe remains in outline as far as the lower edge of the membrane, with traces of a suspiral above. The course of the nuns' pipe may be similarly traced. But in tinting the drawing the limner has discontinued the nuns' conduit before reaching the crossing of the pipes, and roughly daubed in the St. John's pipe as following the same direction as the other.

A little nearer London the road crossed the line of the Clerkenwell pipe, which was carried under it as described in a note:

here o' pipe goþ in a pece of oke kev'ed w^t a creste of oke ovyr þ^e diche in to þ^e hye wey And so lyne right fro þ^e pece of oke to þ^e suspirel in þ^e nönys felde þorugh the hye wey þ^e pipe goþ in closid in hard stone of ba . . . .

The suspiral is duly shown on the other side of the road as a square set to one side of the pipe, with an inlet and outlet for the water. By it is the note (in hand B):

Þis suspirel stondiþ in þ^e side of þ^e diche þ^t deptiþ [þ^e departiþ *struck through*] þ^e nönys felde of clerkynwelle & þ^e hye wey þ^t goþ fro londoñ to Iseldoñ.

Just above this note is drawn by the wayside another large mount, encircled by a hedge, with the inscription (in hand B):

The mylle hille in þ^e nönys feelde of clerkynwelle

but a later hand (C) has added:

this hyll is made pleyne w^t the ffelde

In the copy a round building with low domed roof is shown standing upon it, with a pathway up to it from a gate opening from the road. There is no sign of such a structure in the original.

From the suspiral the conduit runs without interruption through the nuns' field, then crosses a brook or ditch into

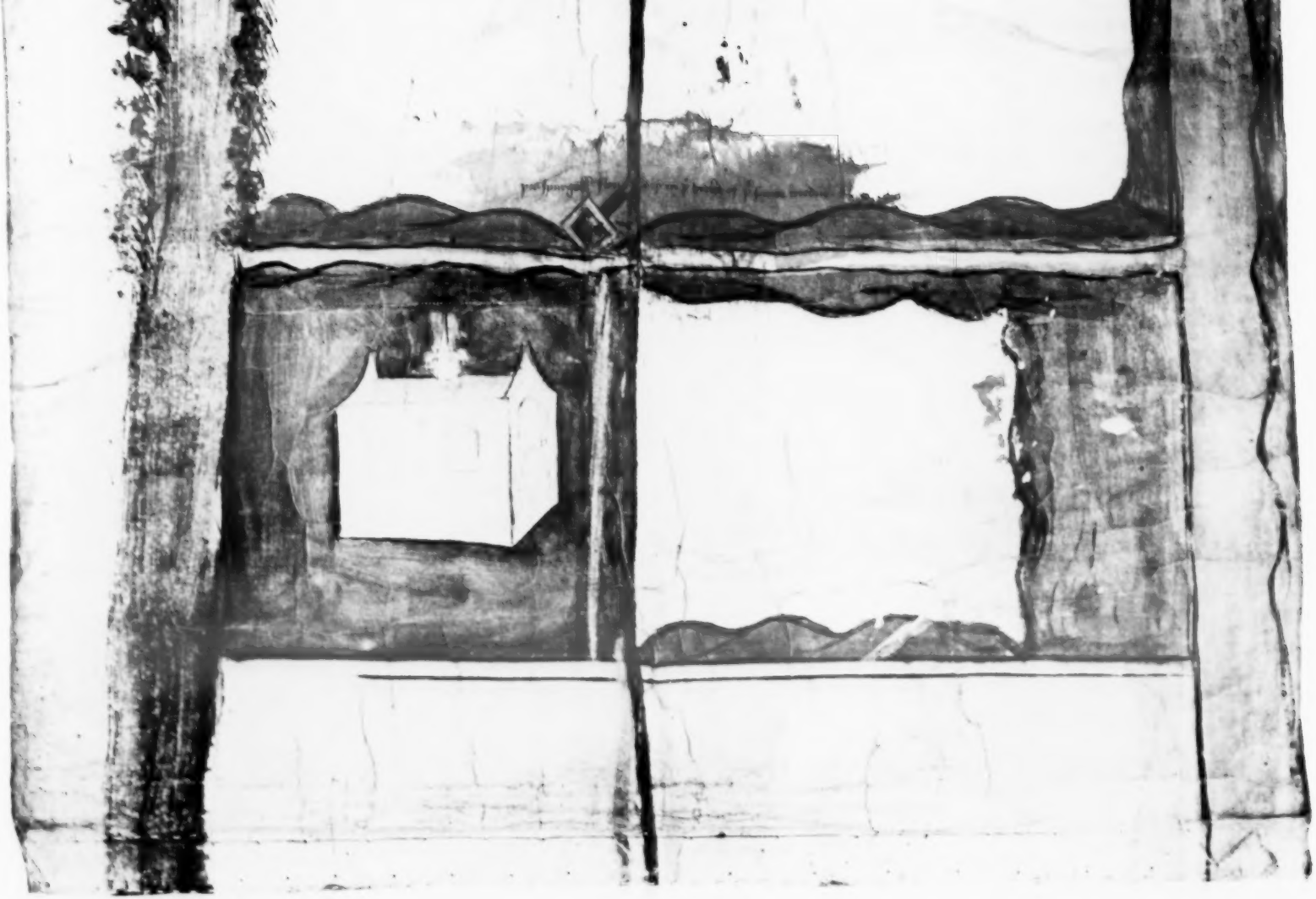
Seynt John medue þ^t is callyd White Welle beche medue (Hand B.)

Both this meadow and the nuns' field lie between the two roads above mentioned.

On the south side of the meadow is another ditch, at which the pipe throws off a short branch on the west to a square tank, inscribed (in hand B):

Þis spurgell stondiþ in þ^e diche of þ^e same medue.

The ground which the pipe traverses after passing the "spurgell" has in its western half an oblong building standing east and west, with gabled roof and central bell turret surmounted by a spire. (Plate XXIII.). It has a window towards the east and two in the south wall. In the copy the building is drawn somewhat differently and inscribed "Pardon chappell," and so we are able to identify it with the chapel built upon "No man's land" in 1348 or 1349 by bishop Ralph of Stratford.



MAP OF THE OLD WATER SUPPLY OF THE LONDON CHARTERHOUSE
Reduced

To the east of the pipe the copy has a note also not found in the original:

barleyte Grownd wth the lyttyl Cottage joynynge unto Islyngton Waye

Finally the pipe enters the precinct of the Charterhouse. (Plate XXIV.)

The peculiar arrangement of the monastery is very quaintly but vividly shown. First we have the great cloister, with the cells and gardens of the monks on the west, north, and east sides; other cells, with the laundry, chapter house, and church on the south side; and the little cloister, etc. on the south-west. Further south are the buildings called Egypt, the gatehouse, and a building called the Windmill.[a]

The great cloister is shown as square, which we have every reason to believe was its actual form, and surrounded by what were no doubt covered alleys, such as existed at the sister house of Mount Grace in Yorkshire; though the roofs are not shown in the drawing. The cells of the monks were entered by doorways from the cloister alleys, and are distinguished by letters, beginning at the south end of the western range, which contained seven cells, lettered A to G. On the north were seven more cells, lettered H to O, and on the east seven others, lettered P, Q, R, S, T, V and X. Each cell stands in the corner of its garden as at Mount Grace, but the subdivisions of the cells are not shown, nor the little turn or hatch, which certainly existed (since two or three remain) beside each cell door, for passing provisions, etc. through. Two more cells, lettered Y and Z, are placed in the eastern end of the southern range, and these have the square turn drawn beside the doors. The total number of cells was twenty-four, the sacrist's cell completing the series.

In the centre of the great cloister is an interesting structure to which the pipe is finally led.

It consisted apparently of an octagonal[b] stone base, rising from a moulded plinth, supporting a corbelled-out erection, evidently of timber, of somewhat larger size than the base, with panels round its lower half and windows in the upper half, two on each side. The roof is shown as pyramidal, with incurved sides, and surmounted by a banner for a vane with a large cross above.

What notes originally were written have been erased and a much longer

[a] For a valuable paper on "The Ancient Buildings of the Charterhouse," by Mr. G. Wardle, see *Archæological Journal*, xliii. 231-242.

[b] The building is drawn as if hexagonal, but the accompanying description says it was eight-sided.

descriptive memorandum inserted in a late and crabbed hand on either side of the structure. That on the north reads:

M^d that thys age ys made viij^th square and in that[a] square which ys [from the *struck through*] north[b] warde dyrectlye from the suspyrell the mayne pype dothe come & Rysythe up into the age in the mydd^e of a fayre square Cestron of leade. Wh' yt Runnythe downe out of the *(erasure)* in the top of the age into a [*pyp struck out*] another pype on the weast syde of the same Wills whych dothe s've the howse

That on the south side reads:

M^d that the doore Goyng into the age. benethe dothe stand dyrectlye southe warde and the doore into the age above Openythe east warde and the Goyng up therunto ys by a ladder / and above ys a Greate [Md that *struck out*] Cestron square of leade and in the mydd^e therof dothe Ryse the mayne pype and at the heyht

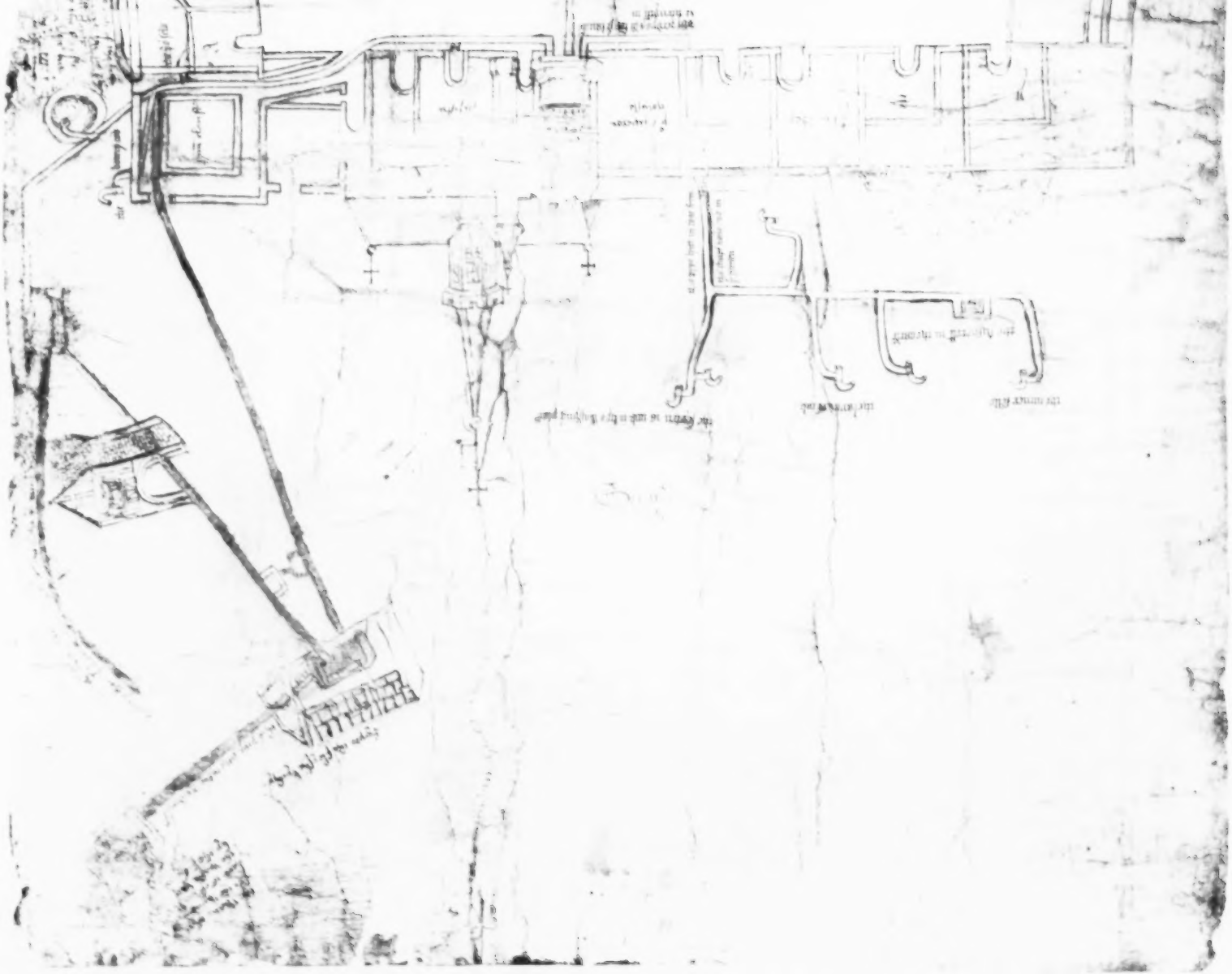
From these notes we learn that the structure was the conduit house of the monastery, here called by the rare and unusual term "age,"[c] and that in its upper half was a square lead cistern into which the main pipe, whose course we have so carefully followed, discharged itself. From the cistern descended the supply pipe,

[a] An erasure here. [b] Written over an erasure.

[c] The word "age," meaning apparently the distributing cistern of a conduit, seems to be identical with the Latin *augea*, a word used in grants relating to the water-supply of London in the fifteenth century. Thus the Abbot and Convent of Westminster in March 1439-40 granted to the Mayor and Commonalty "unum capud simul cum quibusdam fontibus . . . . una cum *augeis* sesperalibus fontibus et cisternis congruis ac convenientibus ad includendam recipiendam et habendam aquam salientem ac emanentem in quodam clauso nostro vocato Oxlese infra terram et precinctum Manerii nostri de Padyngton . . . . erigere construere ponere et habere valeant imperpetuum" (Patent Roll, 21 Henry VI. pt. 2, m. 2). Another grant to the Mayor and Citizens by the King in June 1443 refers to the building of "quandam Crucem spectabilem in Westchepe dicte civitatis *pro quadam augea eisdem conductibus tanquam mater deservitura*" (*Ibid.* m. 14).

The former of these quotations occurs in an *inspeximus* of Henry VI., dated 24th June, 1443, printed in Rymer's *Fœdera* (xi. 29-33), on whose authority Du Cange has the following: "AUGEA VENTOSA, Spiramentum, Gall. *Ventouse*. Dicitur de canalibus fontium, quibus parvum additur foramen, quo interclusi venti elabantur, a Gallico *Auge*, Alveus, canalis: *Augeæ Ventosæ, suspirales fistulæ, pipæ et aliæ machinæ, per quas tota aqua, veniens et discedens a capitibus et fontibus prædictis, recipitur et currit . . . . dictas Augeas Ventosas, suspirales fistulas, pipas et alias machinas . . . . perscrutari, mundari et reparari*, apud Rymer, tom. II, pag. 29." [*Glossarium Mediæ et Infimæ Latinitatis* (Niort, 1883), i. 476, s.v.] In the text as entered on the Patent Roll there is no such punctuation as has misled Du Cange, the words reading: "nonnulle augee ventose suspirales fistule pipe et alie machine," etc.

Crabb's *Universal Technological Dictionary* (London, 1823) gives: "Augea (*Archæol.*) a cistern for water."



MAP OF THE OLD WATER SUPPLY OF THE LONDON CHARTERHOUSE (c. 1)

Reduced

which was divided beneath into branches that served the house. The age was furnished with two doors: one in the south face on the ground level to allow of access to the pipes; the other in the eastern face of the upper story, and reached only by a ladder, for access to the cistern. Neither of these faces is seen in the drawing.

The fragments of a similar conduit house, but hexagonal in plan, were discovered by myself in the middle of the great cloister at Mount Grace in 1900.

From the age issue four branch pipes, one to each of the cardinal points. Midway between the age and the buildings each pipe has on one side a square tank. The object of this is explained by an inscription against that of the north pipe:

This suspall s'vith for thes ij pipis

That is, the main pipe and the service pipe, which here lie side by side.

The west, north, and east service pipes pass under the cloister wall to the gardens behind the monks' cells, and then branch right and left so as to serve each cell.[a]

The southern pipe runs to a prettily designed lavatory built into the cloister wall. In the upper half was an ornamental cistern, probably of metal, with a row of taps in front along the bottom. Under the taps was a trough to carry off the waste carried by a projecting stone base, semi-hexagonal in plan, and flanked by buttresses or pilasters which held up a stone canopy overhead. There is a lavatory recess still existing in the corresponding place at Mount Grace.

From the lavatory cistern descended two other supply pipes.

The one was carried eastwards past "þ^e^ chapetor howsse" (written in hand C) and then turned into the garden of the sexton's or sacrist's cell which adjoined it, as it also does at Mount Grace.

The position of the pipe beyond this point is shown in a curious manner. The buildings it supplied were (i) the sexton's cell, (ii) "þ^e^ launderi," (iii) a cell beyond, lettered Z, and (iv) the corner cell, lettered Y. The pipe, however, is drawn clear of the buildings, in the open ground to the south, but with notes that make all clear. These notes are written in a hand quite different from any other on the roll, and were perhaps added by the artist who made the drawing in order to explain his own peculiar way of showing the position of certain pipes.

[a] At Mount Grace, where the arrangement of the pipes must have been similar, every monk had a tap fixed in a small arched recess in the wall on the cloister side of his garden, usually under a pentise.

Starting from the lavatory we read of the pipe that:

xvj 3erdys & dī frō þ^t^ lavoi's it turnyth in

After the turning in of the pipe another note tells us that

this pype lyith iiij foote from the chapt' hous ende in þ^e^ garden

It then turned eastward again to the corner cell, but with branches right and left. The first branch terminates in two taps or cocks, one above the other. Against the latter is written:

the sexten is cook in hys was-syng' plac^e^

The second branch on the same side also ends in a tap, described as "the launderi cok." The third branch clearly served cell Z, and the fourth, as a note tells us, "the corner selle." Between the third and fourth branches is a small tank described as "the susperell in the gardē."[a]

On the opposite side of the pipe is a single branch, ending in a cock like the others, but without any explanatory note. As each of the four buildings is provided for, this branch may have passed through the outer wall for use on the other side.

The second of the pipes from the lavatory turns westwards, past a cell lettered "sacrista" and a doorway beside it, and then makes a bend through another doorway. It here traverses what seems meant for a passage and continues westward along the north side of a court entitled (in hand C) "pvū claust" (*parvum claustrum*). It here throws off a branch to the cell marked A, over which is written (in the same hand as that above noted) "the p'o^r^ selle," next to which is a gabled building lettered (in hand C) "ffreytor." Just beyond the branch to the prior's cell the pipe makes a bend to the south-west and also throws off another branch. This passes southward along the west side of the little cloister, then turns through the outer wall and ends in a cock. A note in the same hand as before, which tells us that this is "the botery cok," marks the approximate place of the buttery, but this is not shown in the drawing. From the buttery branch the pipe continues south-westwards beyond the little cloister for some distance with a branch on the north side to a large circular tank, indicating "the brew-house." It then turns southwards to an oblong structure, placed north and south, which may indicate a cistern. From this there issue two pipes. The one, distinguished by a brown

[a] A small tank has lately been uncovered in one of the gardens at Mount Grace.

tint, runs southwards to a small suspiral, beyond which it bends round towards the south-east and then ends. A note written alongside (in hand C) explains that

this pipe goethe outte of the cisterne by the kychen doore & s'vithe elmys & the hertis horne [a]

The other pipe issues from the south-east corner of the cistern and passes out of the monastery through the archway of the gatehouse. It then changes its blue tint to brown, and continues past a suspiral to a building lettered "Egipt," with the inscription over it, "Egipte the fleyshe kychyn," both in hand C.

Into this building there enters another pipe, also tinted brown. It issues from the garden of the cell lettered B, passes the frater and the prior's cell, and then turns in to the little cloister. It traverses the west walk of this, issues from a doorway on the south, and then makes straight for "Egipt." Just before reaching "Egipt" it passes a small suspiral placed close to that on the pipe from the gatehouse and connected with it by a short branch.

The course of the pipe just described is indicated by a long note in hand C written near its starting point and extending to the edge of the roll, where it becomes illegible from mutilation and rubbing. What can be read is as follows:

this pipe gothe oute of the bake syde of the cell next the p'ors w'yn ij foote of þ^e^ ende of þ^e^ freyto^r^ all alongest w'owt þ^e^ wall & so throw the litill cloyst^r^ by the buttry to the fleyshe kychyn uppon a lofte into a cistern and owt of this pype þt goothe to egypt at the ende of the freyto^r^ comyth . . lenth yn to the . . . ende of the pelose or entre . . . . . for egypt . . . . . .

The building called Egypt is shown as a gabled structure with a tiled roof, containing a tank or cistern, perhaps raised somewhat from the floor, or "uppon a lofte" as the note just quoted says, into which the two pipes already described discharge their contents. From the cistern issues another pipe, which runs through a small suspiral or tank within the building and passes out of it through a round opening in the gable end. An accompanying note explains that "this pipe gothe to the Wyndmyll." The Windmill, which is so lettered, was probably a tavern. It is drawn as an oblong building with gabled ends and a tiled roof, and a door with a square label over it on the north side. Above the Windmill is a note in hand C telling us that

the water that gothe fro the Wyndmyll to the white hert is of no dote[b] but onely the waste water of the wyndmyll by the sufferaunce of the charter house

[a] The Elms and the Hart's Horn were probably two taverns without the gate.

[b] *i.e.* value.

From the dimensions and notes that accompany the plan it would seem to be quite an easy matter to lay down the course of the pipes on the map, but as a matter of fact there are difficulties which at present can not be got over. The position of the "house," known in later times as the White Conduit, can be fixed, since it or its successor as rebuilt by Thomas Sutton was standing as late as 1831.[a] It is also easy to show the relative positions of the wells north of it, but of the points to the south the distances from it of only four are given, viz. the suspiral immediately south of "the house," the windwent next to it, and the first of the wells in the Commanders Mantells, and the stone by the windmill hill that marked the divergence of the Charterhouse and Clerkenwell pipes. Did we know the approximate site of St. John's "receyte under the hegge" it would be possible to lay down a number of other points for which distances are given, but the extensive works of the New River Company have obliterated many features that might otherwise have survived on old maps. Moreover, the old course of the Charterhouse pipes is now built over. The land known as Commanders Mantells was a great field belonging to the Priory of St. John and extended southward for a considerable distance from the Barnsbury boundary, and eastwards along St. John Street Road. It seems to have been subdivided by a transverse hedge and ditch.

The long and narrow tongue between the Goswell Road and St. John Street and St. John Street Road, with the Charterhouse at its southern end, belonged partly to the nuns of Clerkenwell and partly to the Priory of St. John, and their boundaries can be approximately laid down, but it is uncertain where the Charterhouse pipe crossed the "king's way," now St. John Street, into the nuns' field.

Further study by those acquainted with the early topography of London may lead to the eventual elucidation of the difficulties in the way of tracing the lines of pipe.

[a] It stood on the site of a row of houses in the parish of Holy Trinity, Islington, on the south side of the street now (1902) called Denmark Road, but formerly White Conduit Street. See the map, engraved in 1841, in *The History and Topography of the parish of St. Mary, Islington*, by S. Lewis, junior (Islington, 1842), where the "White Conduit House" itself is shown. It had, however, been destroyed in 1831 (*op. cit.* 396).

XII.—*The Castles of the Conquest.* *By* J. H. Round, *Esq.*, *M.A.*

Read 23rd January, 1902.

By way of introduction to the subject I have the honour of bringing before you I will trace as briefly as possible the controversy as to the origin of those remarkable strongholds, found throughout the three kingdoms, of which the essential feature is a moated flat-topped mound. This was the "motte" of mediæval French, the "mota" of mediæval Latin.

The story begins with the well-known theory which "the great master of military architecture," as Mr. G. T. Clark was styled by Professor Freeman, was, he claimed, "the first to set forth,"[a] and which he applied throughout the two volumes of his *Medieval Military Architecture*, a work published, at Mr. Freeman's suggestion, in 1884. This theory, as I hope to show you, has met with extraordinary acceptance; it has been widely and influentially adopted as established beyond dispute. These moated mounds, according to Mr. Clark, are all subsequent to the coming of the English to this country in the fifth century, and they are none of them later, as the other limit, than the first half of the tenth century. Whether he had formed any clear idea as to when, or by whom, within those limits, these mounds were actually raised seems extremely doubtful. In his preface, indeed, we find them styled "the moated mounds of the ninth century," and he usually assigned them to the period of the Danish invasions; but owing to his using the term "Northmen" for the first English settlers as well as for the later Danes, his meaning is often obscure. Yet he held, at least, that in the sixth century Wihtgar "probably threw up the work which bore his name," now "known as Carisbroke,"[b] and that "when the English lord took up his

[a] *Medieval Military Architecture*, i. vii.

[b] *Op. cit.* i. 15.

abode within a Roman camp or station," he "threw up his bank in one corner," as at Pevensey, Leicester, Cambridge, and several other places where these mounds are found;[a] and in the closing words of his paper devoted to "the shell keep," he styled these mounds "the early residences of the adventurous Northmen who laid the foundations of the English people."[b]

In spite, however, of these expressions, Mr. Clark assigned, I think, these moated mounds, in the main, to the long struggle of the Danish invasions in the latter part of the ninth century and the early part of the tenth. And his reason for doing so was this. He found in the Anglo-Saxon Chronicle, throughout the course of that struggle, frequent mention of a *burh* being "wrought" as a defensive work. "Of the fifty *burhs* mentioned in the chronicle, about forty-one," he wrote, "have been identified," and at "twenty-two are moated mounds, mostly with base-courts also moated."[c] From this Mr. Clark jumped to the following essential propositions:

> What then is a burh? A burh is a moated mound with a table top, and a base court, also moated, either appended to one side of it or within which it stands. But the burhs, the dates of which are on record, and which are thus described, are but a very few of those found all over England, in the lowlands of Scotland, and on the marches bordering on Wales, which, from their precise similarity in character to those actually identified, must be assumed to be of like date and origin, and may therefore safely be attributed to the ninth and tenth and possibly to the eighth centuries, and to the English people, that is to the Northern settlers generally, as distinguished from the Britons and the Romans.[d]

I have been careful to give you here Mr. Clark's own words, because, overlooking their confusion, which does not concern us here, of the first English settlers with the later Danish invaders, they show clearly his two propositions: first, that the *burh* was a moated mound; second, that all the *burhs*, that is the moated mounds, were raised at one period, which closed in the tenth century.

The first proposition, that the *burh* of the Chronicle was always a moated mound, was accepted without hesitation by Professor Freeman and Mr. Green. I need only cite the case of Warwick, where Æthelfleda wrought a *burh* in 914. Of this we read in Mr. Freeman's work:

> The Lady wrought between the town and the river one of those vast artificial mounds which played so important a part in the early history of fortification . . . . The mound

[a] *Medieval Military Architecture*, i. 18.
[b] *Ibid.* 22.
[c] *Ibid.* 145.
[d] *Ibid.* 23.

itself still remains, a monument of the wisdom and energy of the mighty daughter of Ælfred, while the keep of William has so utterly perished that its very site can only now be guessed at.[a]

And again:

At Warwick the mound of the Lady of the Mercians still stands; for the castle of the Conqueror we seek in vain.[b]

Mr. Green was every whit as positive that the *burh* of the Chronicle was a mound. Almost in Mr. Freeman's words he wrote of Æthelfleda that

she reared between town and river one of those mounds which marked the defensive warfare of the time, and which stripped as it is of every trace of the fortress with which she crowned it . . . . still remains to witness to the energy of the lady of Mercia (p. 202).

From his *Conquest of England* published in 1883 I hasten to three important works all published, by a strange coincidence, in 1898, and all eager in adoption of Mr. Clark's theory on the mounds. In *Early Fortifications in Scotland*, Dr. Christison, secretary of the Society of Antiquaries of Scotland, asserted that moated mounds or "motes were *the* fortresses of England during the Saxon period," and referred to Mr. Clark as his authority. Sir James Ramsay, in the most recent of the detailed histories of this country in the early middle ages, cited Mr. Clark throughout on the *burhs* and followed him most absolutely.[c] Lastly Professor Oman, who is actually supposed to be our greatest authority on

[a] *Norman Conquest*, iv. 191.

[b] *Ibid.* v. 648. The first of the above quotations continues thus: "Most likely it stood in the void space between the mound, the gateway, and the later castle." It is thus abundantly clear that, at Warwick, Mr. Freeman considered the castle of the Conqueror to have been something quite distinct and apart from the old English mound. On the other hand, at Wallingford, we find him writing: "One of the vast mounds which speak of later days of English victory under Eadward the Unconquered stood ready to become at William's bidding the kernel of a stronghold from which the new invader might hold Englishmen in bondage" (iii. [1875], 543). And, lastly, at Chester, under the heading "Restoration by Æthelflæd 907," he writes without hesitation of "the mound on which the Norman castle was now to supplant her earlier stronghold" (iv. [1871] 313). Comparing this with the passage on Warwick quoted in the text from the same volume, we see, I think, clearly that he had not thought out the subject, and that his vague language leaves it in doubt what he really believed as to those mounds and their treatment by the Normans, if indeed he had then any definite belief on the subject.

[c] *The Foundations of England*, i. 272, 452; ii. 152.

mediæval warfare, ardently adopted Mr. Clark's theories in his *Art of War in the Middle Ages*.[a] You will see then that these theories practically hold the field and that their overthrow would affect several standard works.

And now from the *burhs* of the Danish wars I pass to the castles of the Conquest. Here I speak of the Norman Conquest, as did Professor Freeman, in the sense of a process which began with Normans who settled in England under the Confessor, and which was going on for many years after the landing of William. The old crude conception of the castles raised at this period is seen very clearly in Professor Freeman's work; but the peculiar horror with which he viewed them was part of his well-known ἦθος, of a cast of mind which accurately reflected the middle-class Liberalism of the period of the great Exhibition. Primogeniture he detested; feudalism he loathed; castles were for him always filled with "devils and evil men." I will read you the Professor's words:

> The hateful castle was wholly new. The stern square tower, perched on its height, ... was before all things the badge of the Conquest, the sign of the dominion of the stranger. It was the castles which sheltered the devils and evil men. . . . . It was the castles which contained those dens of torment where men pined as no martyrs had pined in the days of old. . . . . The castle was the badge of the great change, social and political, to which the Norman Conquest had put the finishing stroke.[b]

And he ends by referring to the feelings of our "forefathers" at "the un-English importation of Eadward's foreign favourites . . . . when Richard the son of Scrob raised the first castle on English ground,"[c] that is, Richard's Castle.

I want you to observe Mr. Freeman's insistence on the fact that the castles of the Conquest were something, in English eyes, absolutely strange and new. In describing the building of Richard's Castle, if Richard's Castle it was, which I doubt, in 1052 he was moved to write as follows:

> The building of castles is something of which the English writers of this age frequently speak, and speak always with a special kind of horror. Both the name and the thing were new. . . . . For such a structure the English language had hitherto contained no name. But now the tall, square, massive donjon of the Normans, a class of buildings whose grandest type is to be seen in the Conqueror's own Tower of London and in the more enriched keep of Rochester, began . . . . to rear itself over the dwellings of Englishmen. . . . . Such

[a] See below.

[b] *Norman Conquest* (1876), v. 648.

[c] *Ibid.* 649.

strongholds, strange to English eyes, bore no English name, but retained their French designation of *castles*.[a]

So long as it was possible to maintain this old crude view, Mr. Clark's theory of the *burh* would arouse no difficulty. Mr. Freeman argued, plausibly enough, that as the word "castel" was a new introduction, it must evidently have denoted something "quite distinct from the familiar *burh* of earlier times."[b] And

[a] *Ibid.* (1870), ii. 136. Compare the remarkable passage on the destruction of the castles at York by the English rebels in September, 1069: "Wherever a Norman castle had been reared it was the object of the bitterest of all hatred, as the living embodiment of the foreign yoke. We now look on those massive square keeps, wherever they are left to us, as among the most venerable and precious of the antiquities of our land. . . . . But when those towers were still newly built, when their square stones were still in their freshness, when the arches of their doors and windows were still sharp and newly cut, they were to our fathers the objects of a horror deeper even than that with which France in the moment of her uprising looked on the Bastille of her ancient kings. They were the very homes of the Conquest; within their impregnable walls the foe was sheltered. . . . . In the eyes of the men of those days the castle was an accursed thing, to be swept away from the earth by the stroke of righteous vengeance, as when liberated Syracuse swept away the citadel from which her Tyrants had held her in thraldom. On the very day on which the army reached York the two castles were broken down. We are not to suppose that the whole of the massive walls of two Norman keeps could be razed to the ground in the afternoon of a day of battle. But they were doubtless dismantled, wrecked, and left in a ruined state, so that they could not, for some while at least, be again used as places of defence" (*Ibid.* [1871], iv. 270). Yet of one of these "square Norman keeps," with their "massive walls," the writer himself had asserted, some pages back (p. 241), that it "must have been a hasty structure of wood or of the roughest kind of masonry. For we read that it was built during the king's sojourn of eight days" earlier in the year.

Compare with Mr. Freeman's dreams the plain words of Mr. Clark on the subject of these York castles. On the later of the two he wrote (*op. cit.* i. 86, ii. 545): "The other mound, the Bayle Hill, south of the river, was also fortified by William, but in haste and with timber only, which does not appear ever to have been replaced with masonry." "That this was a mere stockade is clear from the fact that it was completed in eight days, before he left the city. . . . . The defences were familiar to the English, and would not strike them with the same terror as the stony and lofty keeps which the Normans had lately begun to build in Normandy, and which William had commenced in London." Here I may incidentally observe that, according to Mr. Clark himself, the Tower of London was not commenced till some ten years later (i. 138; ii. 205), and that even this date is earlier than can be proved. But keeping to York, we find Mr. Clark pressing, very properly, the evidence as to its castles (i. 42-3), and concluding thus: "It is clear, from the time occupied by the whole sequence of events, that these castles were not of masonry. Moreover, the masonry of the present York keep contains nothing that can be attributed to the eleventh century, but much that is far too early to have replaced a really substantial keep or curtain of Norman date had such been built. Upon the great and artificial mound of Bayle Hill, the site of the second castle, there is neither trace nor tradition of any masonry at all."

[b] *Ibid.* 605.

if it denoted a rectangular keep, this of course was so. But unfortunately it did not; and that is where the trouble begins. Any archæologist could tell you to-day not only that Richard's Castle never had a square keep, but that this type, so far as we can find, was not even introduced into England till five-and-twenty or thirty years after the Normans had raised their Herefordshire "castel" in 1052. And the land had been covered with castles meanwhile by their countrymen.

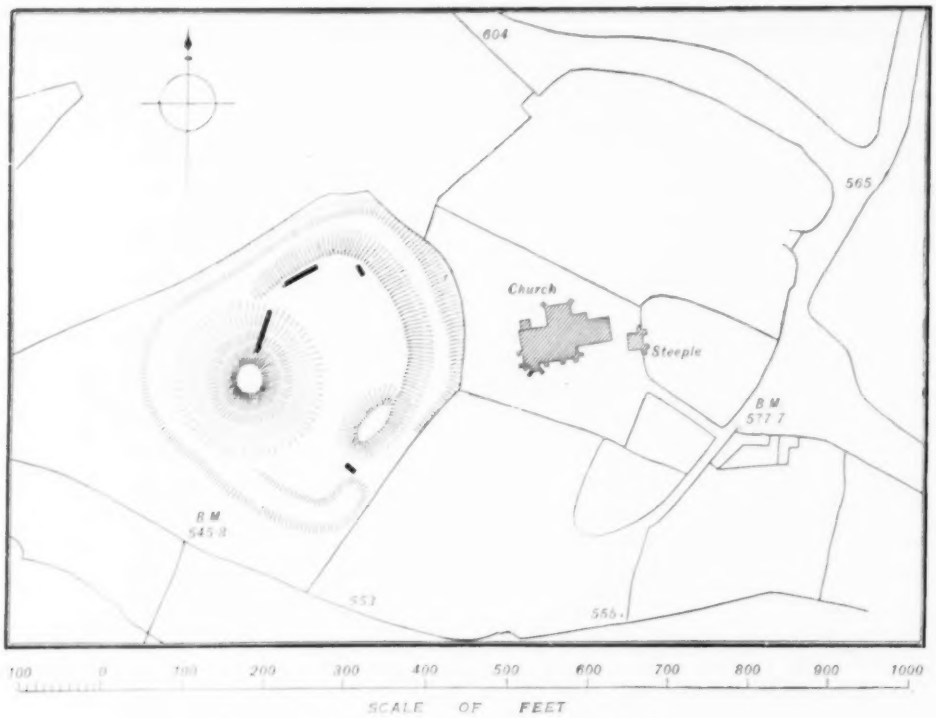


Fig. 1. Plan of Richard's Castle, from the Ordnance Survey.[a]

[a] The above plan has been kindly prepared by Mr. W. H. St. John Hope from the 25-inch Ordnance Map, and it may therefore be relied on as accurate. It differs seriously from the plan given in Mr. Clark's work, but his own description there facing it proves that the plan is erroneous.

When correctly depicted, as here, Richard's Castle presents the normal features of these fortresses, and may be taken as a type of the Conquest castle described in this paper. The appended base-court or bailey is "semi-lunar" in form, a shape produced in these strongholds by placing the moated mound with its proper ditch astride on the *enceinte*. The same arrangement will be observed in the plan of Pleshey below.

Mr. Clark observed that 'Richard's Castle is one of a series of works common on the Welsh

What then were the castles of the Conquest? Mr. Clark set himself to answer this question in the third chapter of his work. He observed that in their existing remains there is hardly ever a trace of masonry that can safely be assigned to the period, and he forcibly argued that, speaking generally, "Those castles which belong to the Norman period are too late to be the work of the Conqueror or his personal followers, and too early to allow of any preceding work in Norman masonry (which was usually sound and solid) having been constructed and swept away."[a] What then, he asked, was the solution? He was forced to the conclusion that the shortness of time, of material, of skilled labour, drove them to adopt and repair the *mottes* or castle mounds which, according to him, were already plentiful before ever a Norman came here. In his own words, where there was a mound, "they seem to have been content to repair the existing works, usually of timber only, and to have postponed the replacing of them with a regular shell till a more convenient season, which in many cases did not occur for a century."[b] And there were not, he even held, half a dozen instances in which they did not select an existing mound as their castle.[c] Thus we discover that, after all, the castle introduced by the Normans, that new, that strange, that terrible thing, was only the old palisaded mound standing where it stood before. Mr. Clark even suggests that it may have been the Conqueror's policy to place his followers in strongholds with which the English were so familiar.[d]

Observe into what contradiction Mr. Clark's theory had led him. As a dutiful follower of Professor Freeman he was bound to hold that Richard's Castle was something new and fearful. "The English," he wrote, "who were aware what engines of local tyranny were the Norman castles, could not but have regarded with dismay the lofty walls and towers, which made impregnable a place already strong, and converted a well-known *burh* into a castle such as they

border and the Middle Marches. Such were . . . . Kilpeck and Ewias Harold" (ii. 401). And of Ewias Harold he wrote that "on the western margin is placed a conical table mound . . . . which necessarily . . . . reduces the eastern side to an open crescent-shaped platform" (ii. 40). This platform corresponds, it will be seen, with the base-courts of Richard's Castle and of Pleshey.

The immediate proximity of Richard's Castle to the churchyard is another feature of common occurrence, and points to such castles having been used as the seats of local lords (*mottes seigneuriales*).

[a] *Op. cit.* 41.

[b] *Ibid.* 42.

[c] *Ibid.* 44.

[d] *Ibid.* 44-45.

had heard of with dread, but had not before seen" (ii. 402).[a] Yet he hastened, in the very next sentence, to admit that "it is difficult to say" what Richard really built, and that "lofty walls and towers" had no foundation but a guess.

Indeed, when writing of Kilpeck Castle, in the same county and of the same type, Mr. Clark suggested that "the early Norman lords contented themselves with a residence and defences of timber, and did not build for a century or so after their occupation, when the shell keep was constructed. It is not probable that this was preceded by any earlier work in masonry, as Norman buildings were substantial and durable" (ii. 165). And at the opening of his chapter on the shell keep he maintained that it was usually later in date than the rectangular type for the reason that the early Norman lords had found the English palisade crowning the English mound a sufficient defence for their purpose.[b]

I cannot find that Mr. Freeman ever really faced the question; but vague as his language is, he cannot have liked a theory which threatened to rob him of his castles.[c] When you are clamouring for stone donjons "filled with devils and evil men," it is annoying to be offered only the harmless necessary *burh*. The word "castel," he insisted, meant "something quite distinct from the familiar *burh* of

[a] So too he wrote, in another place, of Richard's Castle that "as this castle was a great cause of offence, it probably was something different from the fortified timber houses of the English thanes, and may well have been of stone, after the rising Norman fashion" (i. 393).

[b] "A tolerably close examination has failed to discover, either at Arundel or elsewhere in England or in Normandy, any masonry of very early character, probably none that can safely be attributed to the eleventh century. The fact seems to be that the early timber structures, which are known to have been erected originally on the moated mounds, were found to be very defensible, and so were retained by the Norman lords until they were able to replace the timber by masonry" (i. 159). So too, "it may safely be said that, save a fragment of wall at Corfe, no military masonry older than that event (the Conquest) has as yet been discovered" (i. 37). This covers the remains of masonry at Richard's Castle, which he admitted looked later than 1052 (ii. 402). Indeed he elsewhere definitely stated that it has "no masonry of the age of the Confessor, nor is it probable that the keep was constructed before the age of Stephen, if so early" (i. 102).

[c] "I have already spoken of the extreme rarity of castles in England before the Norman Conquest, and of the general indignation which was awakened by the building of a single castle in Herefordshire by a single Norman adventurer. . . . . But now the age of castle-building fairly set in. It was William's policy to keep the conquered land in check by commanding every town and every important point by one of these fortresses. . . . . And, as we follow his steps, we shall see that at every stage of the Conquest, the building of a castle in a conquered town was ever the first work of the Conqueror's foresight" (*Norman Conquest* [1871], iv. 66). And again he speaks of the houses overthrown "to make way for the building of the castles which were in English eyes the special homes of wrong and badges of bondage" (*Ibid.* [1876], v. 40).

earlier times"; and he urged, as against Mr. Clark, that "stone fortresses" were well known in the eleventh century.[a] But the evidence he adduced was amazing. It consisted of a passage in which, he wrote, the stone fortress is "pointedly distinguished" from the wooden tower. In the year 1025 Count Odo of Chartres "turrem ligneam miræ altitudinis super domgionem ipsius castri erexit." On this Mr. Freeman comments: "The donjon itself was surely of stone." You will observe the word "surely." Why, the writer cannot even have known what a donjon was. Yet a chronicler whom he had studied, namely Lambert of Ardres, wrote of "motam altissimam, sive dunjonem eminentem, in munitionis signum firmavit et in aggerem coacervavit."[b] The "donjon" was the *mota* or moated mound, and is the name given it in later days by Leland at Southampton and elsewhere and by Dugdale at Warwick. Mr. Freeman, "surely," was thinking of "the mysteries of Udolpho."

But if Mr. Freeman had his doubts about Mr. Clark's theory, it has made at least, as I shall show you, one illustrious convert.

Our chief specialist on the Art of War as practised in the Middle Ages, who is now acting at Oxford as Chichele Professor of History, I mean Mr. Charles Oman, is apt to change his views somewhat suddenly and often. Those who will do me the honour to read my paper on "Anglo-Norman Warfare" will find that he has in turn produced four different theories on the so-called palisade at the battle of Hastings, each of them absolutely trustworthy and all of them mutually destructive.[c] It is the same, as I have shown, with the battle of Bannockburn.[d]

And so with the castles of the Conquest. So late as 1894 we find Mr. Oman writing that the Conqueror was induced "not only to erect stone castles himself, but to encourage his great tenants to follow his example . . . . that William and his great barons generally built in stone is attested by the remains that are

[a] *Ibid.* [1870], ii. 605-7.

[b] Mr. Freeman, indeed, could not mistake the significance of the word as used by Lambert. We find him writing: "As the Lady of the Mercians had done a few years before, he raised a mighty mound—'*dunio*,' 'firmissimus munitionis agger'—and girt it about with a twofold ditch. These words bring home to us that *dunio*, *donjon*, meant, first of all, the mota, the artificial *dune* or *down*, so characteristic of the earlier stage of fortification . . . . . The *dunio*, as we shall presently see, was primarily meant to carry only wooden buildings; at the outside it would never carry more than the shell-keep of Cardiff or Lincoln." (*Historical Essays*, 4th S. 171.)

[c] See my *Commune of London*, 43-8.

[d] *Ibid.* 299-301.

with us to this day."[a] But four years later we find Mr. Oman writing of "the palisaded *burhs* . . . . of Edward the Elder,"[b] and explaining that

> Hillocks or artificial mounds were trenched and palisaded. *Motte* (mound) seems to have been the general name for these structures among the Romance-speaking races; the English called them *burhs*. . . . . Such undoubtedly were the *burhs* of the English thegnhood which William the Conqueror found in existence when England submitted to him . . . . the greater part of William's castles were merely adaptations and additions to the old English strongholds. The masonry was added half a century later.

Mr. Oman goes on to assert that "undoubtedly the large majority of William's strongholds must have been palisaded *burhs* in the old English style," and acknowledges his "deep indebtedness to Mr. Clark's third chapter" (pp. 518-521).

In spite, however, of the ardour of the neophyte, you will see for yourselves that there is something wrong. If the normal castle of the Conquest was but the familiar *burh*, why was there no word for it in English? Why was it something new and terrible? Why did it excite horror and dismay, as even Mr. Clark admits that it did in the case of Richard's Castle? I have sometimes found in the course of my researches, as in the problem of the introduction of knight-service into England, that a theory, however influentially upheld, needs only to be clearly stated to break down of its own weight. And so when you strip from Mr. Clark's theory the vague language in which it was expressed, you find that it breaks down from its own inherent contradictions.

Let me remind you that this theory, the theory that the castles of the Conquest were but the English strongholds occupied and repaired by the Normans, rests on two propositions. The first is that the *burh* was essentially a moated mound, and that therefore some of the existing mounds were the actual *burhs* mentioned as constructed in the ninth and tenth centuries. The second and far more startling proposition is that every moated mound must, as a consequence of this,

[a] *Social England*, i. 328. Precisely the same view is taken by another writer in the same volume: "Conquered England was held down by dozens of castles, square keeps with walls of enormous thickness built of solid stone, and often relying solely on their own strength without being surrounded by any outworks. The English, in their revolts, could never storm one of the new castles. . . . In the eleventh century the art of defence had quite outgrown the art of attack" (p. 301).

[b] *Art of War in the Middle Ages*, i. 517.

belong to that period. With the first of these propositions others, I shall show, have dealt; with the second I dealt myself in the *Quarterly Review* article which sounded, Mr. Hope tells me, the first note of opposition to the accepted theory on the subject. It is really difficult to say which is the more surprising, that Mr. Clark should ever have advanced, or that anyone else should have accepted, a proposition not only so baseless, but so wildly at variance with all our evidence on the subject as that these mounds were never erected after the earlier years of the tenth century. Mr. Freeman rightly cited against him the definite witness of

Fig. 2. The building of Hastings castle. From the Bayeux Tapestry.
(From *Vetusta Monumenta*, vol. vi.)

William of Jumièges that even in the days of the Conqueror's youth his nobles threw up mounds, "erexerunt aggeres," as their castles. The priceless witness of the Bayeux tapestry (fig. 2) shows us that he himself did so as soon as he landed in England;[a] and, to hasten on, I showed in my article, that more than a

[a] The legend on the tapestry is "jussit ut foderetur castellum at Hestengaceastra." The Anglo-Saxon Chronicle has: "Hi . . . . worhton castel æt Hæstinga port." Its phrase for the Herefordshire castle of 1052 is "gewroht ænne castel on Herefordscire."

century later, the Anglo-Normans in Ireland were still raising, as their castles, *mottes* or moated mounds.

I know of no more amazing example of the determination to sweep aside all facts and all testimony conflicting with a theory which itself is absolutely without foundation than is seen in Mr. Clark's treatment of the castles of the Conquest. We see the castle-mound rising on the Bayeux tapestry (fig. 2); we read in the chroniclers how William, at every stage of the Conquest "condidit," "firmavit," "stabilivit," "locavit," "construxit," his castles; we turn to Domesday and there we read how William or one of his barons made (*fecit*) a castle. And at these very places mentioned by these witnesses we normally find *mounds*. Mr. Clark, of course, was aware of this, but he swept aside the language of Domesday and the chroniclers alike, and insisted in paper after paper that these mounds were English. In vain does Orderic observe, in an often-quoted passage, "Munitiones (quas Castella Galli nuncupant) Anglicis provinciis paucissimæ fuerant," with the result, he adds, that the bravery of the English did not enable them to offer an effective resistance to the Conquest. All a mistake, Mr. Clark replies, "England, in this respect was exceedingly well provided—quite as well provided as Normandy" (i. 35); the country was "covered with strong places, which were, no doubt defended, and well defended with palisades . . . . . If at the Conquest no English stronghold held out it was not that such places were less capable of defence than those in Normandy, but that England was broken up into parties . . . . The conquest of England was made possible, not by the absence of strong places, but by the want of organisation for their defence" (i. 38-9).

It was thus that Mr. Clark disposed of unwelcome evidence; he either ignored it, or waived it aside. On the other hand his own evidence needs careful sifting, for it not only proves at times to be little else than assumption, but even takes the form of assertions contradicting one another. For instance, under Richard's Castle we read that Harold, in 1056, entered the Marches against the Welsh, and that at that time "his probable godson, Harold, the son of Ralph, held the Castle of Ewias Harold, the earthworks of which were constructed on the type of those of Richard's Castle" (ii. 402). But on turning back to Ewias Harold (ii. 42), we there read that (as was the fact) Harold the son of Ralph "was a mere child" at the time (1055), and had nothing to do, moreover, with Ewias castle till many years later. And yet we have only to turn back further to an earlier page of Mr. Clark's work (i. 108) to read of Ewias, that "The Harold

from whom it derives its distinctive name was an English proprietor before the Conquest," an assertion which would favour Mr. Clark's theory if it rested, as of course it does not, on fact.

I desire to call special attention to the words employed by the chroniclers and by Domesday. There is one instance in which we find the word "restaurarent" used by a chronicler; Orderic speaks of the men left by William at York "qui restaurarent in urbe castella." But this word is applied to the castles which William himself is recorded to have there constructed,[a] and which the rebels had broken down. This is exceedingly strong evidence that when the chroniclers applied such words as "firmavit" and "condidit" to the castles founded by William, the mound for instance that we see being raised on the Bayeux Tapestry, they did not mean, as Mr. Clark imagined, the mere occupation or even restoration of an existing English fortress. And Domesday Book supplies precisely the same evidence. To its normal word, the word "fecit," there is one striking exception. We read of the castle of Ewias Harold, "castellum Ewias" as Domesday terms it (fo. 186), that William Fitz Osbern "hoc castellum *re*firmaverat." Why? Because it stood in the very district where the Normans had begun building castles even under Edward the Confessor, and was, I have urged in my *Feudal England* (p. 324), the actual castle of Osbern Pentecost mentioned in the English Chronicle. Thus the one exception to the rule in Domesday Book proves that, as with the chroniclers, it used its words with care, and that when it said "fecit," it meant what it said, and did not mean "restored" or "adapted."

When we turn to later evidence, evidence of the days of Stephen, we find in the language employed striking confirmation of my view. Thus, for instance, in the second charter of the Empress Maud to Geoffrey de Mandeville (1142) we read:

> Concedo etiam eidem Gaufredo quod novum castellum quod *firmavit* super Luiam stet et remaneat ad efforciandum ad voluntatem suam. Concedo etiam ei quod *firmet* unum castellum ubicunque voluerit in terra sua . . . . et quod stet et remaneat.[b]

It is quite clear that the verb *firmare* is used here of the raising of a new castle, not of the repair of an old one. For strengthening the defences of a castle

[a] Orderic had said of the first castle, "in urbe ipsa *munitionem* firmavit," and of the second "alterum præsidium condidit."

[b] See my *Geoffrey de Mandeville*, 168. Compare the use of "firmavit" by Lambert of Ardres in the passage quoted above.

after it is raised the word used here is "efforciandum." So, too, in her earlier charter the Empress had granted to Geoffrey:

ut castella sua que habet stent ei et remaneant *ad inforciandum* ad voluntatem suam.[a]

But Stephen used, like her, the word *firmare* when it was a question of a fresh castle:

firmiter ei concessi ut possit *firmare* quoddam castellum ubicunque voluerit in terra sua, et quod stare possit.[b]

Again, when Henry, son of the Empress, granted a charter to Robert FitzHarding in or about the year 1153, it contained this remarkable clause relating to Berkeley:

pepigi ei *firmare* ibi castellum secundum voluntatem ipsius Roberti.[c]

So, too, we read of Hayles (Glos.) that Ralf of Worcester founded there a castle to the disgust of the monks of Winchcombe:

Tempore Regis Stephani, domino Simone presidente ecclesie Wigornensis, cum hostilitas vehementer ingrueret [1140-1150] quidam prepotens, Radulfus de Wirecestre, ... in Hailes castrum *firmavit*.[d]

Lastly, in the same reign, the very remarkable treaty between the earls of Leicester and of Chester contains the following clause:

Nec comes Cestriæ, nec comes Leecestrie debent *firmare castrum aliquid novum* inter Hinchelai et Coventre, nec inter Hinchelai et Hardredeshellam, etc. etc. . . . . nisi communi assensu utriusque. Et si aliquis in prædictis locis vel infra prædictos terminos *firmaret castrum*, uterque alteri erit auxilio sine male ingenio donec castrum diruatur.[e]

[a] *Ibid.* 91.

[b] *Ibid.* 175.

[c] *Berkeley Charters and Muniments*, 2.

[d] *Registrum monasterii de Winchecumba*, 65. Ralf, we read, founded there, at the same time, a church, and now "the meadow adjoining the church contains the earthworks of Ralf's castle" (*Bristol and Gloucester Archæological Transactions*, xxiii. 9). Mr. W. H. St. John Hope tells me that these are slight, so that the castle was probably destroyed as "adulterine" under Henry II., not being licensed to "stand and remain." The proximity of church and castle should here again be observed.

[e] *Vincent's Discovery of Brooke's Errors*, 302-3. It is strongly suggested by the second clause that the castles contemplated would be rapidly raised and could not, therefore, be of masonry.

Sufficient evidence has now been given to show that the phrase *firmare castrum* meant to erect a castle on a new site.

And now, if we try to arrive at a conclusion, what form will it take? On the one hand Mr. Clark may be said to have proved, as against Mr. Freeman, that the castles of the Conquest were moated mounds, crowned with a palisade, and not the rectangular keeps, the "donjons" of solid stone, of which Mr. Freeman dreamed. On the other, these Norman castles appear to have been something new. Allowing for great exaggeration in Mr. Freeman's language on the subject, admitting that the horror they aroused is by no means clearly proved,[a] the fact remains that the word *castel* appears, as he says, to have been used to denote something "quite distinct from the familiar *burh* of earlier times." And if what it denoted was Richard's castle, as Mr Freeman and Mr. Clark agreed it was, it follows that this stronghold and the many others like it were something "evidently" in Mr. Freeman's words, "quite distinct from the familiar *burh* of earlier times." I am anxious not to press the argument an inch further than is fair, but you see clearly what it involves, namely, that the moated mound crowned with its palisades, an object, according to Mr. Clark's theory, long familiar to English eyes, was an object, on the contrary, so strange to them, that their language had no word for it.[b]

At this point I may speak of those who have followed up my attack. A well-known Scottish antiquary, Mr. George Neilson of Glasgow, contributed to the *Scottish Review* three years ago[c] a paper on "The Motes in Norman Scotland," in which he accepted my conclusions and boldly challenged Mr. Clark's fundamental axiom that a *burh* was a moated mound. Analysing all the facts connected with the Scottish motes, he came to the conclusion that these mounds were raised as the *capita* of fiefs after feudal institutions had been introduced into Scotland. A further advance is marked by the paper of Mrs. Armitage read before the Scottish Society of Antiquaries a year and a half ago.[d] In this very remarkable

[a] A careful examination of the passage in the Chronicle, under 1051, will show that the grievance was the "harme and bismere" wrought to the king's men by the strangers rather than their raising "ænne castel." And what Godwine demanded was not the destruction of the castle, but the handing over of the Frenchmen themselves.

[b] The argument based on the introduction (or, more strictly, the fresh introduction) of the word "castel" is strengthened, I think, by the similar introduction of the word *Tur* into the Chronicle, under 1097, to denote a rectangular keep, the Tower of London.

[c] October, 1898 (lxiv. 209-238).

[d] *Proceedings*, xxxiv. 260-288.

study the accomplished writer argued that on the one hand the *burhs* mentioned in the Chronicle are never found to have a *motte* unless the Normans have had a castle there, and that on the other the *motte* is almost universal in castles of early Norman foundation. There are details, with which I need not trouble you, on which questions might arise;[a] but in the main her paper presents a case for the Norman origin of all the *mottes* which it would not be easy to answer.

Her conclusions are well supported by my own county of Essex. In Essex the English Chronicle mentions two *burhs*, those of Colchester and Witham; and at neither of these places are there traces of a moated mound. On the other hand we have at Rayleigh a typical moated mound, and Domesday tells us that Suain of Essex "in hoc manerio fecit suum castellum." This then was a castle of the Conqueror's reign. But what is, I think, even more interesting is that Suain's father, Robert Fitz Wimarc, had held the great manor of Clavering, at the other end of the county, under Edward the Confessor, and that there also we find one of these moated mounds. Now when the Normans fled from London, on the triumph of Godwine's party, in 1052, some rode, in Mr. Freeman's words, "towards a castle in the north, belonging to the Norman Staller, Robert the son of Wymarc."[b] Mr. Freeman could not find this castle, but I suggest that it was Clavering, which virtually lies north of London. If so we have at Clavering, as in Herefordshire, a Norman *motte* of Edward's days. One point more. Of the noble stronghold of Pleshey there is no mention in Domesday; but Pleshey is virtually surrounded by two great parishes, High Easter and Great Waltham, belonging to Geoffrey de Mandeville. Now in Great Waltham there was, as at Rayleigh, a new and extensive vineyard. This, I have argued in a paper on the subject, points to the residence of a Norman magnate.[c] Cross into Hertfordshire and you find it so at Ware; penetrate even into North Suffolk, and there too a baron at Ixworth is engaged in the perilous adventure of growing his own wine. I claim, therefore, the Waltham vineyard as evidence that there was already a Mandeville stronghold near; and I hold that this was Pleshey, which for ages was the seat of the Mandevilles and their heirs.

[a] Mrs. Armitage, it seems, was not aware that the "castle of Wareham" was Corfe; and her inclusion of Berkeley, Hastings, Montgomery, Rochester, and Winchester among castles of the *motte* type known to have been built in the reigns of William I. or William II. is open to question. Nor is the destruction of houses in a town absolute proof in itself of the construction of a *motte* as she insists. It might well, conceivably, be due to the extension of a fortified area.

[b] "Some north to Rodbertes castele," in the Chronicle.

[c] *Transactions of the Essex Archæological Society* (N. S.), vii. 250.

And now if I have not detained you too long already, there are a few new points that I should like to bring before you. First, as to the name of Richard's Castle in Domesday. There is no question, of course, as to this. Mr. Clark spoke of it as

Fig. 3. Plan of Pleshey Castle.*

* The above plan was prepared by Mr. I. C. Gould, to whom the Society is indebted for the loan of the block. It illustrates the addition to the mounted mound and appended base-court, which were (as at Richard's Castle) the essential features of the type, of outer courts or baileys, which is not uncommon in the case of important strongholds.

"Richard's Castle, the Auretone of Domesday" (i. 102), and Mr. Eyton, in his well-known study of the district, dealt with it as "Richard's Castle formerly Auretone."[a] Mr. Freeman, however, in his list of the "castles mentioned in Domesday" entered the Domesday name as "Averton," and strangely called attention to the fact that "Richard's Castle, the earliest, and in some sort the most historically important of all, is not mentioned."[b] As the Domesday name, so far as I know, has never yet been explained, let us ascertain exactly what Domesday actually says. In one place it tells us that Osbern, the son of Richard Scrupe, "has 23 men in the castle of Avretone" (fo. 186b); in another we read that "Robert Gernon holds lands in the castlery of Avretone" (fo. 185). The "v" of course, stands for "u," which brings us to "Auretone"; but what was "Auretone"? Why, it was simply Orleton, of which, though in another Hundred, the church is less than two miles to the south of Richard's Castle. The place itself is "Alretune" in Domesday, for "u" and "l" were then treated as interchangeable, as in "Aubigny" and "Albini."[c] You see then that it is incorrect to speak of Richard's Castle as "formerly Auretone." It was called, from a neighbouring village, "the *castle* of Auretone" (Orleton), because it had no name of its own unless men spoke of it simply as "Richard's Castle."

Now this principle of nomenclature has a very considerable importance. Take, for instance, Domesday's mention of the Conqueror making "Castellum de Warham" (fo. 78b). Mr. Clark and Mr. Freeman both assumed that this castle was at Wareham itself, and therefore sought at Wareham for William's work.[d] But Mr. Eyton in his *Dorset Survey* (pp. 43, 111, 112), and Mr. Bond subsequently in his monograph on Corfe Castle (pp. 88-91), explained that the Domesday entry referred, not to Wareham, but to Corfe Castle itself, some four miles away. Mr. Freeman, however, did not like to have his assumptions questioned; the great "accuracy" fetish was already nodding on its throne. He therefore asserted anew his belief that Wareham was meant, in a passage which showed that he had not discovered the difference between the parish of Corfe Castle and the far distant Corfe Mullen.[e] And the state of the "accuracy" fetish became more parlous than ever.

[a] *Shropshire*, v. 225.

[b] *History of the Norman Conquest*, v. 808.

[c] In Domesday, for instance, the "Alre" of four entries in Devonshire becomes "Avra" in a fifth, just as with "Alretune" and "Avretone."

[d] *Mediæval Military Architecture*, i. 38, ii. 516; *History of the Norman Conquest*, v. 807.

[e] "Corfe appears in Domesday as the former holding of two Englishmen . . . . and as the

Let us turn to Pontefract Castle, as another instance of the practice of naming a castle from a place some distance away. I agree with Mr. Freeman that the name was taken from that passage of the Aire, which Orderic speaks of as "Fractus pons,"[a] and from which Pontefract Castle is some three miles distant. But this derivation has been disputed,[b] and the name does not occur in Domesday. The same remark applies to another Yorkshire castle, the great mound at Tickhill. This fortress, as is well known, was often called the castle of "Blythe," which, says Mr. Ellis, "is unaccountable, as at that manor there are no remains or traditions of a castle."[c] But this is simply another case of a castle built on a site with no recognised name, being sometimes named from a manor, in this case belonging to its lord, a few miles away.

Let us then apply this practice to a far more famous castle, that of Windsor. This castle stands, as you know, between Clewer and Old Windsor, but a mile from Clewer, roughly speaking, and two miles from Old Windsor. Old Windsor is entered in Domesday as a great royal manor, with two serjeants of the king's court among those who dwelt thereon (fo. 56b). But "the *castle* of Windsor" ("*castellum* de Windesores") is entered under Clewer (fo. 62b), which was then in the hands of a small tenant-in-capite. Out of its five hides there had been taken half a hide for this "castle of Windsor," which stood about as far from Old Windsor as Richard's Castle from Orleton, just as from the Abbess of Shaftesbury's manor of Kingston (Abbess), with its sixteen hides, the king had taken, says Domesday, "1 hide in which he made the castle of War(e)ham," that is, Corfe. This passage creates a presumption that Windsor Castle was new and its great moated mound thrown up by William. And this presumption is strangely confirmed by a statement in the Abingdon Chronicle that at Wallingford, Oxford, and Windsor, under William, "castella pro regno servando compacta,"[d] and that the abbey was called upon to provide knights to guard the one at Windsor.

But if Windsor was new, what of Arundel, which, as Mr. Clark observed,

present possession of Robert son of Gerold. From this a local antiquary of high authority (Mr Bond) has argued that the Domesday of Wareham Castle really refers to Corfe" (*English Towns and Districts*, 153). I need scarcely say that Mr. Bond's careful arguments were, of course, not based on an error which he would have known to be such. He specially explained that the "Corfe" of Domesday, held by Robert Fitz-Gerold, was not Corfe Castle, but Corfe Mullen (p. 90).

[a] *History of the Norman Conquest* (1871), iv. 284-5.

[b] See *Medieval Military Architecture*, ii. 376-7.

[c] *Yorkshire Archæological Journal*, iv. 142.

[d] Vol. ii. 3. The authority is recognised as a good one for that period, and it also represents local knowledge, for Abingdon was about half way between Oxford and Wallingford.

resembles it closely in plan? That Domesday speaks of Arundel Castle as existing in the time of the Confessor is a point on which historians and antiquaries have all, I believe, been agreed, and it is held to be the only castle of which Domesday makes that statement. Sir Henry Ellis,[a] Professor Freeman,[b] Mr. Clark,[c] and others all take it for granted. Even Mrs. Armitage herself found in Arundel Castle, "which Domesday Book," she writes, "speaks of as a *castrum* in the reign of Edward the Confessor" (p. 274), the only difficulty in the way of her view that the *motte* was first introduced into England by the Normans.[d]

But when we turn to the manuscript of Domesday, we find the words "Castrum Harundel" written in capitals and rubricated to show that they were the name of the place, while "Castrum" begins with an enormous "C" of the same size as the initials used for Chichester, Pevensey, and Lewes. Moreover, in the often-quoted passage we read that "Castrum Harundel" rendered certain dues in the days of the Confessor, which dues had greatly increased at the time of the Survey, the Conquest having brought prosperity to the river ports of Sussex. In all this we are clearly reading, not of the mere earthwork on the hill, but of Arundel as a whole with its water-mill and its port. So when we speak of Newcastle to-day we mean thereby the whole town and not the mere castle itself. It is common in Norman chronicles and charters to find "castrum" or "castellum" employed in this sense; but, for our purpose, it is more important to observe that Domesday itself indulges in the same practice. Monmouth, to take but a single instance, is entered as "Castellum Monemude" (p. 180b), and its survey begins by stating that in it the king has four carucates and that he draws from what he holds in the "castle" five pounds a year. We then read of ploughs at work there, ploughs many in number, and so we gather what was meant by Domesday's "Castellum Monemude," words, which, as with the name of Arundel, are given in capital letters.[e] I hold therefore that "Castrum Harundel" simply means Arundel itself, which was so named at the time of the Survey from the

[a] *Introduction to Domesday*, i. 212, 223.

[b] *History of the Norman Conquest* (1871), iv. 66, 493; and *William Rufus* (1882), i. 58, ii. 43.

[c] *Mediæval Military Architecture*, i. 71, 195.

[d] It is on this account, doubtless, that Mrs. Armitage, I observe, has run her pen, in the copy I possess, through the perfectly sound observation that "It is certainly remarkable that Dover Castle, the only castle which has any claim to have been built by an Anglo-Saxon, has no motte" (p. 284).

[e] "Castellum Ewias" is similarly valued at £10 a year, and we read that 5 carucates of land were there (*ibidem*), and ploughs at work on them (fo. 186).

mighty castle that earl Roger had erected on the hill above. Domesday Book compares its issues before and after the Conquest, but does not, I confidently assert, imply the existence of the earthwork, a matter of supreme indifference in itself to those who made the Survey, in the days of Edward the Confessor.

This conclusion is of much importance, for if Arundel may have been the work of that mighty lord Roger de Montgomeri, at whose Norman home, St. Germain-de-Montgomeri, earthworks are found, Carisbrooke, of which the plan is similar, might well be assigned to William Fitz Osbern, that potent warrior-earl and ruler of the Isle of Wight.[a]

For the present, however, I prefer to retain a cautious attitude, and to assert only that William and his barons threw up *mottes* as their castles. I am not prepared to go to the length of saying that, because these moated mounds can be proved in many cases to have been thrown up by the Normans, none of them is earlier in date, say the work of Danes. This would be the opposite error to that into which Mr. Clark fell.[b] But I hope that if it can be proved that some of them were raised by Danes, some one will put together and produce the evidence that they *were*; and in the meanwhile I suggest that we deal with each example on its merits. That at least the bulk of them are Norman I feel no doubt. And that they equate, as alleged, the Anglo-Saxon *burh* Mrs. Armitage in her powerful paper has, I think, decisively disproved. There are cases, no doubt, in which we find these moated mounds, with their appendant courts, at places where the Normans never had, so far as we know, a castle. Such are Laughton-en-le-Morthen and Barwick-in-Elmet, Yorks, Great Canfield, Essex, and Towcester, Northants. But we must remember that, as was done by William himself at Hastings, a castle mound would be thrown up at once for defence against a hostile population by the new Norman lord, and might afterwards be abandoned by him for another site. Ilbert de Lacy, for instance, may, I think, have abandoned Barwick for Pontefract.[c] And it is thus also that I

[a] Similarly the great moated mound with its surrounding courts at Castle Acre was a stronghold of William de Warenne, at the *caput* of whose Norman fief, Bellencombre, there is still to be seen "Château du xi^e^ siècle, sur une motte énorme entourée de fossés."

[b] It is but fair to remember that the words of Orderic as to "castella" being "paucissima" in England before the Normans came are, though directly opposed to Mr. Clark's theory, antagonistic also to the view that they were previously quite unknown. These "castella," however, need not have comprised mounds. It is admitted, for instance, that Dover Castle was without one.

[c] Mr. W. H. St. John Hope has drawn my attention to the striking case of Old and New Buckenham, in Norfolk. A priory was founded at Old Buckenham by William d'Albini, earl of

should explain such types as Bramber and Oxford, where the mounds seem to have been first thrown up, and a rectangular tower built as the keep subsequently in another part of the enclosure.[a] Lastly, if *mottes* were still being raised by the Anglo-Normans in Ireland under Henry II., and in Scotland, as Mr. Neilson's researches imply, in at least the twelfth century, they may well have been among that swarm of castles which were thrown up on every side in the struggles of Stephen's reign. This might account for some that we could not otherwise explain.[b]

I may remind you in conclusion that the whole tendency of modern research on the subject has been to assign to rectangular keeps dates later in most cases than the early part of the twelfth century. What, then, was the normal type of castle for half a century after the Conquest? Must it not have been the moated mound with its timber palisade, and its moated and palisaded court or courts? And if in the eyes of the English its sight was strange and fearful, if they had to use for it a foreign word, was not the thing itself as new and as foreign as its name?

My paper originally terminated here; but I am tempted to add an argument derived from the nature and object of the moated mound as a defensive work. It is essentially calculated to enable small bodies of men, planted in the midst of a hostile population, to hold their own against a sudden rising, even when greatly outnumbered. Being thus adapted exactly to the needs of the Norman Conquerors, it possessed for them the further merits of being (1) quickly raised; (2) composed of materials available on the spot; (3) requiring no skilled labour.

But when we are invited to believe that, in the Danish wars, it was the type of fortress adopted by the English, we must ask ourselves whether it was well suited for a purpose wholly different from that of the Norman lords. It was not to protect detachments of their followers against a hostile townsfolk but to protect their own loyal townsfolk against the assaults of Danes that Edward

Chichester, not earlier than 1146, for Austin canons, to whom the founder gave *inter alia* "infra pareum cum bosco et plano *cum sede castelli* lxxx. acras, et *castellum diruendum*" (Dugdale, *Monasticon Anglicanum*, vi. 419). The earl then built himself another castle at New Buckenham, where its great earthworks still remain. See the plan in H. Harrod's *Gleanings among the Castles and Convents of Norfolk* (Norwich, 1857), 215.

[a] There is some reason to suppose that this may have been the case at Hastings also.

[b] See the cases of Hayles, etc. quoted above.

and Æthelflæd wrought. For this purpose the moated mound, it appears to me, would be useless. Its summit could hold but a few defenders, and their missiles could at most reach the base of the mound itself. Beyond that limit they had no power to afford protection.[a] A town, lying at their feet, might be sacked and burnt before their eyes. For protecting a town against attack what was needed was a wall or rampart of some kind round it. That towns were so defended we know from the evidence of Domesday, which alludes to the walls of Chester, Oxford, Colchester, Leicester, and Hereford; and as these allusions are only incidental they cannot be at all exhaustive. Indeed, the Chronicle speaks of the wall which Edward built round Towcester, and of that which subsequently girdled Exeter.

The tale of the assaults on Exeter and their fate is one which bears directly on the meaning of the word *burh*. And I think it further illustrates the confusion which inevitably follows the adoption of Mr. Clark's theory. There is really no need to assail it; we have only to watch Mr. Freeman and Mr. Clark plunging into hopeless contradiction when they attempt to apply it. Mr. Freeman's monograph[b] did not appear till 1887, and it shows stronger traces of Mr. Clark's influence than are found in *The Norman Conquest*.

The first mention of Exeter, Mr. Freeman observes, is in 876, when Alfred pursued a Danish force making for that city, but in vain; for "they had reached the fastness before him."[c] The Professor's comment ran as follows:

> we gain two main points. Exeter was in Alfred's day a fastness, or strong place. The Roman walls of Isca were doubtless still standing, perhaps not carefully repaired or strengthened under either British or West-Saxon occupation. And the word *burh*, so familiar in the military history of the next generation, is not used at this stage. This looks as if the hill which had formed the British stronghold and the Roman citadel did not just now hold that place in the attack and defence of Exeter which it did in after time... Still the walls alone would form a fastness, as the empty walls of forsaken Deva did a few years later.[d]

[a] A base court, if added, would have to depend on its own defences. The mound itself could not protect it.

[b] *Exeter* (Historic Town Series).

[c] *Exeter*, 21. This follows the words of the Chronicle, which here speaks of "þam fæstene" (I. 166-7). In Florence of Worcester its words are rendered, "quia *civitatem* jam intraverat, illam assequi non poterat."

[d] *Ibid.* 21.

This allusion to the similar episode in 894 at Chester is of much interest. Of that episode Mr. Freeman wrote in another place:

> In 894 the Danish army pursued by the English took refuge within the ruined site of Chester . . . . "priusquam Regis Ælfredi et Ætheredi subreguli exercitus, qui illos insequutus (*sic*) est, assequi poterant, intrant." The fugitives were able to defend the "geweorc," as the Roman walls are called, very successfully.[a]

The admission that "geweorc" was used for a walled enclosure should be observed. It is in the same year, 894, that Exeter again appears in history; and the language of the Chronicle on this occasion deserves to be carefully studied. In it we read that the Danes "ymbsæton Exancester," and again that "se here þa burg beseten hæfde" (I., 166-8). This, surely, makes it clear that the "burg" which they beset was Exeter itself; and so Florence understood the words. Alfred, he wrote, heard "illos Exanceastram . . . . non modica manu obsedisse." But Mr. Freeman, reading the passage through Mr. Clark's spectacles, comments on it as follows:

> But now that special word is used which was not used in the earlier story. It was now a *burh* which the besiegers beset. It may be that, at some time between the first and the second appearance of the Danes before Exeter, the city had been strengthened according to the highest standard of the time. The guardian care of Alfred had turned the mere fastness into something stronger. The English forerunner of the Norman castle was now to arise within its walls. At the north-eastern corner the neglected hill, the natural acropolis, was again strengthened. Exeter had not yet a castle; that, name and thing, was everywhere the hated work of later invaders. But the natural stronghold of the city was again fortified; Exeter had now a *burh*, and she had just proved the value of her new defences.[b]

Thus pleasantly, on the wings of fancy, we pass from a guess to statements of fact. But when we strip the passage of its plumes we find that what it asserts is that the Danes beset, not Exeter, but only a *burh* "within its walls." Of this improbable hypothesis the best criticism is found in the words of the Chronicle itself, which states that, in later days, William the Chronicler "besæt þa burh Exancester xviii dagas" (I. 340). Mr. Freeman duly quoted these words from "the short but weighty account" in the Chronicle;[c] but how did he understand

[a] *Norman Conquest* (1871), iv. 313, *note*. The Latin of "insequutus" is Mr. Freeman's.

[b] *Exeter*, 22.

[c] *Norman Conquest*, iv. 151-2.

the word *burh?* In exactly the opposite sense to this which we have just seen him assign to it. It now becomes the whole area of the walled city:

> The walls which Æthelstan had reared, and which Swend had at least partly overthrown, had been repaired or rebuilt, and the city was again strongly fortified. . . . . But it should be noted that we hear only of the defences of the city itself; Exeter did not as yet contain a castle.[a] . . . . The new invader found the city as well prepared for defence as ever it had been against the earlier enemy. The gates were shut, and the whole range of walls and towers was thick with defenders.[b] . . . . The siege began, and was carried on with vigour on both sides for eighteen days. The besiegers kept up a constant attack on the walls. . . . . It was by undermining the walls that William at last gained possession of the city.[c]

We shall have to return to the dealings of William with the Exeter defences, and I only introduce them here to illustrate the use of the word *burh*.

Between these two periods Exeter was again attacked in 1001 and 1003, unsuccessfully on the former, successfully on the latter occasion. Of Pallig's attack in 1001 we read that the Danes entered the Exe and "eodon þa up to Ðære byrig and Ðær fæstlice feohtende wæron" (I. 250-251). Florence's version of this episode runs, "Dum murum illius destruere moliretur, a civibus urbem viriliter defendentibus repellitur [Paganorum exercitus]." Mr. Freeman, in his *Norman Conquest*, cited these passages and summarised their contents thus:

> The Danes now attacked Exeter, just as they had attacked London; but the citizens of the western capital fought with as good a will and with as complete success as their brethren of the east. King Æthelstan's wall stood them in good stead, and the attack of the barbarians was altogether fruitless.[d]

Here the attack is represented as repulsed by the walls alone, the walls which, as I observed above, were the natural and only effective protection for a town. But when we turn to Mr. Freeman's *Exeter* (1887) we again find that Mr. Clark's theory has effectually coloured his view:

> A few years before the wall of London, defended by the citizens of London, had proved too strong for two kings of the north. And now the *burh* of Alfred, the wall of Æthelstan —both are specially spoken of—were guarded by men no less valiant and did their work no less well. The heathen were beaten back, and the city could breathe again.[e]

[a] *Norman Conquest*, iv. 139. [b] *Ibid.* 154.

[c] *Ibid.* 156. In his *Exeter*, 36-8, Mr. Freeman adopted precisely the same view.

[d] Vol. i. 309.

[e] *Exeter*, 26.

It should be scarcely needful to say that of a "*burh* of Alfred" there is no mention, or explain that the "byrig" of the Chronicle refers, on the contrary, here to the walled town itself, the *urbs* of Florence. The next episode is the capture of Exeter by the Danes in 1003. "Her wæs Exacester tobrocen," says the Chronicle, and Florence tells us that the Danish king "civitatem Exanceastram infregit, spoliavit, murum ab orientali usque ad occidentalem portam destruxit." Mr. Freeman observed that "this does not imply the complete destruction of the city, but Henry of Huntingdon says, 'urbem totam funditus destruxerunt,' which is doubtless an exaggeration"[a] The Professor had evidently overlooked the words of his own supreme authority, the Chronicle itself, which goes on to tell us that "se here ðа þа buruh mid ealle fordyde." So Henry merely gave a rendering of the Chronicle's words, and we see that for him as for Florence the *burh* was the town itself.

We may now return to 1068, when William besieged Exeter,[b] the *burh* of the Chronicle on that occasion being, as we have seen, for Mr. Freeman, the whole walled town. Both in his earlier and in his later work he assigns to the "Rougemont" mount no part in the defence. But he could not wholly escape the question, what did William find on that mount, and what did he add to it? In the *Norman Conquest* he seems to have held that William found nothing, for he assigned to the Conqueror, as a "first step, the building of a castle"; on Rougemont "William laid the foundations of the famous castle of Exeter."[c] Next year we read of "the fortress which had grown up on the Red Mount of Exeter," and are told that "the men of Devonshire . . . . appeared in arms beneath the walls of Rougemont."[d] But in his later work (1887) he had been influenced enough by Mr. Clark's theory to take a less positive view and to hold that William merely adapted a fortress already in existence, in fact the *burh* he had now been led to attribute to Alfred.

The Red Mount of Exeter had been the stronghold of Briton, Roman, and Englishman; but the military art had advanced in Norman hands, and the defences which satisfied Alfred did not satisfy William.

The conquered city had to be secured by the building of a castle. But both nature and

[a] *Norman Conquest*, i. 315-6, *note*.

[b] See my paper on "The Conqueror at Exeter," in *Feudal England*, 431 *et seq.*

[c] *Ibid.* iv. 161. "To the right of the gate," we read, on his arrival, "there rose the high ground which William's keen eye would at the first glance mark as the site of the future castle" (p. 154).

[d] *Ibid.* iv. 272-3.

the men of earlier times had done so much that the Norman engineers had less to do than usual. The hill-side was ready scarped, the ditch was ready dug; on such a site the massive square keep was hardly needed, and the top of the hill was already turned into something not unlike a shell-keep. But a stone wall supplanted the rampart of earth which had hitherto been its defence, and towers were added . . . . Within the next year, the new defences of the Red Mount were put to the test.[a]

This, it will be seen, whittles down the construction of the Norman castle to the adaptation of an English one, and is thus in agreement with Mr. Clark's theory. But when we reject vague generalities and grapple with the plain question, what did William do? we find that Mr. Clark effectually disposes of Mr. Freeman's answer. "The earliest masonry," we read, to be seen is that of the gatehouse,[b] and Mr. Clark was doubtful whether this was the work of Baldwin (de Meules) "or his successor," while in his chapter on the shell-keeps, he questioned the existence in any such keep of masonry that can safely be attributed to the eleventh century, and asserted that "the shells of masonry . . . . were of later date than the solid towers"[c] (*i.e.* the rectangular keeps).

Here then we are brought back once more to the same, the inevitable difficulty. If, as Mr. Clark's theory involves, the castles of the Conquest were simply those of the English taken over by the Normans, how was it that the castle, "name and thing, was everywhere the hated work of the invaders."[d] Mr. Freeman seems, in the case of Exeter, to have gone so far, we see, as to admit that the Normans may only have strengthened an English stronghold by replacing earth by masonry. But this concession was of no avail, for Mr. Clark declined, rightly it would seem, to admit that the castles of the Conquest were castles of masonry at all. What then, we can imagine Mr. Freeman asking him, did the Normans really do? Where was the great innovation? What were the castles which the chroniclers describe them as founding, as constructing?[e] The answer, of course, is quite simple. We shake ourselves free of Mr. Clark's assumptions and see that what the Normans raised were moated and palisaded mounds.

NOTE.—I have selected, as explained above, the case of Exeter for study

[a] *Exeter*, 39.

[b] *Medieval Military Architecture*, ii. 45.

[c] *Ibid.* i. 139.

[d] *Exeter*, 22.

[e] Orderic states that William, at Exeter, "locum intra mœnia ad exstruendum castellum delegit." This implies a new construction

because its history "bears directly on the meaning of the word *burh*," and shows how Mr. Freeman was led by Mr. Clark's theory to detect an imaginary "*burh* of Alfred" within its walls. But Rougemont, it must be remembered, was a castle of a quite exceptional type, owing to the configuration of the ground. Its elevation made it a natural citadel, and in such cases the Normans seem (as Mr. W. H. St. John Hope has shown was done at the Castle of the Peak) to have simply fenced in the summit without troubling to erect a mound as the keep. Rougemont thus eventually assumed the form of a walled enclosure about 100 yards square.

Rec'd Feb 7 1903

No 1704

ARCHAEOLOGIA:

OR

MISCELLANEOUS TRACTS

RELATING TO

ANTIQUITY.

ARCHAEOLOGIA:

OR

MISCELLANEOUS TRACTS

RELATING TO

ANTIQUITY,

PUBLISHED BY THE

SOCIETY OF ANTIQUARIES OF LONDON,

VOLUME LVIII.

LONDON:

PRINTED BY J. B. NICHOLS AND SONS, PARLIAMENT MANSIONS, VICTORIA STREET, WESTMINSTER.

SOLD AT THE SOCIETY'S APARTMENTS IN BURLINGTON HOUSE.

M.DCCCCIII.

ARCHAEOLOGIA:

OR

MISCELLANEOUS TRACTS

RELATING TO

ANTIQUITY.

PUBLISHED BY THE

SOCIETY OF ANTIQUARIES OF LONDON,

SECOND SERIES. VOLUME VIII.

LONDON:

PRINTED BY J. B. NICHOLS AND SONS, PARLIAMENT MANSIONS, VICTORIA STREET, WESTMINSTER.

SOLD AT THE SOCIETY'S APARTMENTS IN BURLINGTON HOUSE.

M.DCCCCIII.

DA20
A65
V.58 no.2

TABLE OF CONTENTS.

PAGE

I.—*On some rare forms of Bronze Weapons and Implements. By the Rev.* William Greenwell, *D.C.L., F.R.S., F.S.A.* - - - 1—16

II.—*Excavations on the site of the Roman city at Silchester, Hants, in* 1901. *By* W. H. St. John Hope, *Esq., M.A. With a note on the Plant-Remains of Roman Silchester. By* Clement Reid, *Esq., F.R.S.* 17—36

III.—*Recent Excavations at Stonehenge. By* William Gowland, *Esq., F.S.A., F.I.C., Associate of the Royal School of Mines. With a note on the Nature and Origin of the Rock-fragments found in the Excavations. By Professor* J. W. Judd, *C.B., LL.D., F.R.S., F.G.S.* 37—118

IV.—*Excavations at Caerwent, Monmouthshire, on the Site of the Romano-British City of Venta Silurum, in* 1901. *By* Thomas Ashby, *Jun., Esq., M.A., F.S.A.,* Alfred E. Hudd, *Esq., F.S.A., and* A. T. Martin, *Esq., M.A., F.S.A.* - - - - - - 119—152

V.—*Some familiar Letters of Charles II. and James Duke of York addressed to their daughter and niece, the Countess of Litchfield; transcribed and edited by* Harold Arthur, Viscount Dillon, *Hon. M.A. Oxon, President* - - - - - - - 153—188

VI.—*On the Destroyed Church of St. Michael Wood Street, in the City of London, with some Notes on the Church of St. Michael Bassishaw. By* Philip Norman, *Esq., Treasurer* - - - 189—216

VII.—*On a Saracenic Goblet of Enamelled Glass of medieval date. By* Charles Hercules Read, *Esq., Secretary* - - - 217—226

VIII.—*The Charters of the Manor of Ropley, Hants. By* T. F. Kirby, *Esq., M.A., F.S.A., Local Secretary for Hants* - - - 227—236

IX.—*On some points in the History of Inlaid Jewellery. By* O. M. Dalton, *Esq., M.A., F.S.A.* - - - - - 237—274

X.—*The St. Albans School of Painting, Mural and Miniature: Part I. Mural Painting. By* William Page, *Esq., F.S.A.* - - 275—292

PAGE

XI.—*The London Charterhouse and its old water supply. By* W. H. St. John Hope, *Esq., M.A.* - - - - - - 293—312

XII.—*The Castles of the Conquest. By* J. H. Round, *Esq., M.A.* - 313—340

XIII.—*Charters of Harmondsworth, Isleworth, Heston, Twickenham, and Hampton-on-Thames. By* T. F. Kirby, *Esq., M.A., F.S.A.* 341—358

XIV.—*Brougham Castle, Westmorland. By* E. Towry Whyte, *Esq., M.A., F.S.A.* - - - - - - - 359—382

XV.—*Garnier de Nablous, Prior of the Hospital in England, and Grand Master of the Order of St. John of Jerusalem. By* J. H. Round, *Esq., M.A.* - - - - - - 383—390

XVI.—*Excavations at Caerwent, Monmouthshire, on the Site of the Romano-British City of Venta Silurum, in* 1902. *By* Thomas Ashby, Jun., *Esq., M.A., F.S.A.,* Alfred E. Hudd, *Esq., F.S.A., and* A. Trice Martin, *Esq., M.A., F.S.A.* - - - - - 391—406

XVII.—*On a Morse Ivory Tau Cross Head of English work of the Eleventh Century. By* Charles H. Read, *Esq., Secretary.* - - 407—412

XVIII.—*Excavations on the Site of the Roman City at Silchester, Hants, in* 1902. *By* W. H. St. John Hope, *Esq., M.A* - - 413—428

XIX.—*On a Carved Ivory Pyx in the British Museum. By* O. M. Dalton, *Esq., M.A., F.S.A.* - - - - - - 429—436

XX.—*Recent Discoveries in the Cloister of Durham Abbey. By* W. H. St. John Hope, *Esq., M.A., Assistant Secretary, with Introduction by Canon* J. T. Fowler, *D.C.L., F.S.A., a Local Secretary for Durham* - - - - - - - - 437—460

XXI.—*On the Excavations at Arbor Low,* 1901—1902. *By* H. St. George Gray, *Esq.* - - - - - - - 461—498

XXII.—*The Submerged Greek and Roman Foreshore near Naples. By* R. T. Günther, *Esq., M.A., Fellow of Magdalen College, Oxford* 499—560

XXIII.—*The Mediæval Library of the Benedictine Priory of St. Mary, in Worcester Cathedral Church. By the Rev.* J. K. Floyer, *M.A., F.S.A.* - - - - - - - 561—570

Appendix.

The Garden-house at Beckett, Shrivenham. By W. Niven, *Esq., F.S.A.* - - - - - - - 571—573

Check-piece of a Roman Helmet. By T. Cecil Woolley, *Esq.* - 573

A pair of Silver Parcel-gilt Altar Cruets. By Max Rosenheim, *Esq., F.S.A.* - - - - - - - 574

Index - - - - - - - - - 575—593

LIST OF ILLUSTRATIONS.

PLATE		PAGE
	Some rare forms of Bronze Weapons and Implements:	
	Fig. 1. Dagger, possibly from Hallstatt - - -	1
	Fig. 2. Bronze blade found at Kimberley - - -	3
	Fig. 3. Bronze blade found near Beaune - - -	4
	Fig. 4. Bronze knife found near Colophon - - -	5
	Fig. 5. Silver pin found near Colophon - - -	6
	Fig. 6. Piece of a glass pendant found near Colophon -	6
	Fig. 7. Bronze knife found in the Island of Naxos - -	6
	Fig. 8. Bronze knife found near Nauplia - - -	7
	Fig. 9. Bronze knife found in Egypt - - - -	8
	Fig. 10. Bronze axe-head from Van, in Armenia - -	9
	Fig. 11. Bronze axe-head from Hamadan, Persia - -	9
	Fig. 12. Bronze axe-head from Khinaman - - -	10
	Fig. 13. Bronze axe found near Kertch - - -	12
	Fig. 14. Bronze axe found near Beyrût - - -	13
	Fig. 15. Bronze axe found near Beyrût - - -	14
	Fig. 16. Bronze axe, locality unknown - - -	15
I.	Silchester.—Plan of part of *Insula* XXII. - - facing	17
II.	Silchester.—Plan of *Insula* XXVII. . - - facing	18
III.	Silchester.—Mosaic pavement in House No. 1, *Insula* XXVII. facing	21
	Fig. 1. Stamped clay from Room 30, House No. 1, *Insula* XXVII. - - - - - - -	25
	Fig. 2. Fragment of arch of a niche or recess, found in *Insula* XXII. - - - - - -	30

PLATE PAGE

Fig. 3. Inscribed tile found at Silchester - - - 30
Fig. 4. Diagram of lines on a tile, perhaps for use as a gaming-board - - - - - - 31
Fig. 5. Engraved glass with Christian emblems - - 32
Fig. 6. Block-plan of Silchester, showing portions excavated down to the end of 1901 - - - - - 33
IV. Stonehenge.—View of the "leaning stone" before it was set upright in 1901 - - - - - facing 37
Fig. 1. General view of Stonehenge after the "leaning stone" was set upright - - - - - 37
Fig. 2. View of the "leaning stone" showing its inclination and its position relative to the "blue stone" monolith - 39
Fig. 3. Registering frame and vertical rod - - - 41
Fig. 4. The registering frame in position around Excavation VI. - - - - - - - 42
Fig. 5. The "leaning stone" with the cradle and cables attached - - - - - - - 43
Fig. 6. The "leaning stone" set upright - - - 44
Fig. 7. Plan of the excavations around the stone - - 46
Fig. 8. Excavation I. Sections - - - - 48
Fig. 9. Excavation II. Section through the middle - - 49
Fig. 10. Excavation III. Sections - - - - 50
Fig. 11. South-west side of the underground portion of the stone - - - - - - - 51
Fig. 12. Excavation Q. Section, south-east side - - 52
Fig. 13. Excavation V. Transverse section - - - 54
Fig. 14. Flint Implements found in the Excavations - 58
Fig. 15. Flint Implements found in the Excavations - 59
Fig. 16. Flint Implements found in the Excavations - 60
Fig. 17. Flint Implements found in the Excavations - 61
Fig. 18. Flint Implements of similar forms to those found at Stonehenge - - - - - - 63
Fig. 19. Flint Implements of similar forms to those found at Stonehenge - - - - - - 64
Fig. 20. Stone Implements found in the Excavations - 66
Fig. 21. Stone Implements found in the Excavations - 68

PLATE		PAGE
	Fig. 22. Stone Implements found in the Excavations -	69
	Fig. 23. Heavy maul as used in Japan - - -	70
	Fig. 24. Deer's horn pick found at Stonehenge - -	71
	Fig. 25. Transport of a colossus. Egypt - - -	74
V.	Transport of a huge block of stone. From a Japanese drawing - - - - - facing	74
	Fig. 26. Line of holes cut across a corner of the so-called "slaughter stone," No. 95 - - - -	76
	Fig. 27. Fallen stone showing grooves formed in dressing the surface - - - - - - -	77
	Fig. 28. Tooled surface of the stone - - - -	79
VI.	Sun-Worship in Japan. From a Japanese print - facing	88
	Fig. 29 Excavation VI. - - - - -	101
VII.	General Plan of Stonehenge, 1902 - - - facing	118
VIII.	Caerwent.—Plan of Houses II., VII., and VIII. - facing	122
	Fig. 1. House No. 2, Room 1, Masonry of east wall of corridor - - - - - - -	124
	Fig. 2. Hypocaust in House No. 2, Room 14- - -	126
	Fig. 3. Bronze plaque found in House No. 2- - -	128
	Fig. 4. Furnace in House No. 2, Room 45 - - -	136
	Fig. 5. Furnace (c) in House No. 1 - - - -	137
IX.	Caerwent.—Sections of Houses II. and VII. - - facing	138
X.	Caerwent.—Mosaic pavement in House No. VII., Room 6 facing	140
XI.	Caerwent.—The lower pavement, Room 7, House No. VII. facing	141
XII.	Caerwent.—Paintings on north wall of House No. 7 - facing	142
	Fig. 6. Remains of supposed shrine in House No. 8 - -	149
	Fig. 7. Sandstone head found on site of supposed shrine in House No. 8 - - - - - -	150
	Fig. 8. Plan of Caerwent, showing discoveries down to November, 1901 - - - - - -	152
	Fig. 1. Signet of King Charles II. - - - -	157
	Fig. 2. Signet of James Duke of York - - -	157
	Fig. 1. Church of St. Michael Wood Street, London - -	191

PLATE		PAGE
	Fig. 2. Church of St. Michael Wood Street, London, with tower as finished by Wren - - - - - -	192
	Fig. 3. Churches of St. Michael Wood Street and St. Mary Staining. From Agas's Plan of London - - -	197
	Fig. 4. Church of St. Michael Wood Street, London - -	198
XIII.	Tower arches of the destroyed church of St. Michael Wood Street, London - - - - - - facing	199
	Fig. 5. Church of St. Michael Wood Street, London. Doorway to turret staircase - - - - - -	199
	Fig. 6. Moulded stonework from the church of St. Michael Wood Street, London - - - - - -	200
	Fig. 7. Plan of the church of St. Michael Wood Street, London - - - - - - - -	201
	Fig. 8. Church of St. Michael Bassishaw, London - -	204
XIV.	Saracenic Goblet of enamelled glass in the British Museum facing	217
	Fig. 1. Section of Saracenic goblet of enamelled glass -	218
	Fig. 2. Enamelled glass goblet in the British Museum -	221
	Fig. 3. Section of ditto - - - - - -	221
	Fig. 4. Enamelled glass goblet formerly in the possession of Mr. Adrian Hope, now in the British Museum - -	223
	Fig. 5. Section of ditto - - - - - -	224
	Fig. 6. Enamelled glass beaker in the British Museum -	225
	Fig. 7. Section of ditto - - - - - -	225
XV.	Seals from Charters of the Manor of Ropley, Hants - facing	229
XVI.	Inlaid Gold Ornaments in the British Museum - facing	237
	Fig. 1. Inlaid gold *naos* from Dashur - - -	238
	Fig. 1A. Inlaid "soul" from Dashur, in the possession of F. G. Hilton-Price, Esq. - - - - - -	238
	Fig. 2. Section of the Crown of the Visigothic King Svinthila	241
	Fig. 3. Openwork vessels from Petrossa - - -	242
	Fig. 4. Scene representing a mythological combat at Persepolis - - - - - - - -	245
	Fig. 5. Ivory carving from a throne, formerly gilt and inlaid with lapis lazuli, from Nimrûd - - - -	246
	Fig. 6. Inlaid figure of a beetle, from Nimrûd - -	247

PLATE PAGE

Fig. 7. Ivory sheath inlaid with amber, from Veii - - 248
Fig. 8. Ivory sword hilt inlaid with amber, from Hallstadt - 248
Fig. 9. Back view of gryphon on gold armlet from the Oxus 250
Fig. 10. Gold plaque from the Oxus treasure, representing a lion-headed gryphon - - - - - - 254
Fig. 11. Gold plaque from Siberia, in the Museum of the Hermitage, St. Petersburg - - - - - 255
Fig. 12. Deer from the top of the gold crown from Novotcherkask, in the Museum of the Hermitage, St. Petersburg 256
Fig. 13. Top of a hookah inlaid with turquoises from Yarkand - - - - - - - - 257
Fig. 14. Sculpture from Gandhâra in the British Museum - 263
Fig. 15. Detail from the sculptures of Bharhût - - 264
Fig. 16. Gold girdle-ornament of Sassanian work inlaid with garnets - - - - - - - - 266
Fig. 17. Inlaid gold ornament from Petrossa - - 268
Fig. 18. Gold gorget from Petrossa - - - - 269
Fig. 19. Section of an inlaid gold cover for a book of the Gospels, presented by Theodelinda, Queen of the Lombards, to the cathedral church of Monza - - - 271
Fig. 20. Section of a Byzantine inlaid and enamelled cover of a book of the Gospels at Limburg-on-the-Lahn - - 272
XVII. St. Alban's abbey church.—Painted Decoration on Norman arches - - - - - - facing 277
XVIII. St. Alban's abbey church.—Paintings on the nave piers facing 282
XIX. St. Alban's abbey church.—Paintings on the nave piers facing 284
Fig. 1. Painting of St. Christopher in the nave of St. Alban's abbey church - - - - - - 287
XX. St. Alban's abbey church.—Wall Paintings in the transepts and chapel of St. Alban - - - - facing 289
Fig. 2. Vine pattern in north transept window of St. Alban's abbey church - - - - - - 290
XXI. Map of the old water-supply of the London Charterhouse [m. 1] between 296 & 297
XXII. Map of the old water-supply of the London Charterhouse [m. 2] between 304 & 305

PLATE PAGE

XXIII. Map of the old water-supply of the London Charterhouse [m. 3] between 306 & 307

XXIV. Map of the old water-supply of the London Charterhouse [m. 4] between 308 & 309

Fig. 1. Plan of Richard's Castle, from the Ordnance Survey - 318

Fig. 2. The building of Hastings Castle. From the Bayeux Tapestry - - - - - - - 323

Fig. 3. Plan of Pleshey Castle[a] - - - - 329

XXV. Brougham Castle, Westmorland. Two views from the north-east - - - - - - facing 359

Fig. 1. Brougham Castle. Plan of the Site. From the Ordnance Survey - - - - - - 361

Fig. 2. Brougham Castle. Ground plan of the tower and gatehouses - - - - - - 364

Fig. 3. Brougham Castle. Plans of the postern tower - 367

Fig. 4. Brougham Castle. Buildings in courtyard - - 371

Fig. 5. Brougham Castle. First floor plan of tower and gateways - - - - - - - 373

Fig. 6. Brougham Castle. Second floor plan of tower and gateways - - - - - - - 374

Fig. 7. Brougham Castle. East elevation of keep, with suggested battlements - - - - - 376

Fig. 8. Brougham Castle. First and second floor windows of keep - - - - - - - 377

Fig. 9. Brougham Castle. Plan of the keep or tower. Third floor - - - - - - 379

Fig. 10. Brougham Castle. The oratory in the keep - 381

XXVI. Caerwent.—Plan of Houses IV. V. VI. and IX. - facing 396

Fig. 1. Caerwent. Part of House No. 5 - - - 394

Fig. 2. Caerwent. Drain outlet in House No. 5 - - 397

Fig. 3. Caerwent. Cornice block found in House No. 6 - 404

Fig. 4. Plan of Caerwent, showing discoveries down to March, 1903 - - - - - - 406

XXVII. English Tau of ivory, eleventh century - - facing 407

Fig. 1. Tau head of elephant ivory, with human figures and monsters involved in foliage - - - - 408

[a] The Society is indebted to Mr. I. C. Gould for the loan of this illustration.

PLATE		PAGE
	Fig. 2. Tau head of morse ivory, of Rhenish work, if authentic	409
	Fig. 3. Tau head of morse ivory, wanting the two heads	411
	Fig. 4. Ivory seal of one Godwin the minister	412
	Fig. 5. Tau of morse ivory, resembling in design Fig. 1	412
XXVIII.	Silchester.—Northern part of area excavated in 1902 facing	414
XXIX.	Silchester.—Furnace in House No. 1, *Insula* XXXI. facing	416
XXX.	Silchester.—Wall with socket for beam in House No. 1, *Insula* XXXII. facing	417
XXXI.	Silchester.—Hypocaust in House No. 2, *Insula* XXXII. facing	418
XXXII.	Silchester.—Southern part of area excavated in 1902 facing	422
	Fig. 1. Block-plan of Silchester, showing portions excavated down to the end of 1902	428
XXXIII.	Carved Ivory Pyx in the British Museum facing	429
	Fig. 1. Figure of Moses from the Alcuin Bible in the British Museum	430
	Fig. 2. Figure of St. John from a plaque representing the Crucifixion in the Royal Museum at Berlin	432
	Fig. 3. Ivory panel, ninth-tenth century, in the British Museum	432
	Fig. 4. Figures from a tenth-century Psalter in the Royal Library at Stuttgart	433
XXXIV.	Durham Abbey.—Foundations of Lavatories uncovered in 1903 facing	444
XXXV.	Durham Abbey.—Foundations of Lavatories uncovered in 1903 facing	445
XXXVI.	Durham Abbey.—Foundations of Twelfth Century Laver facing	446
XXXVII.	Durham Abbey.—Foundations and conjectural plan of Thirteenth Century conduit facing	447
	Fig. 1. Durham Abbey. Architectural remains of the Norman lavatory	445
	Fig. 2. Durham Abbey. Marble Stones of the fifteenth-century laver, now lying in the middle of the cloister	449
XXXVIII.	Plan of the Arbor Low Stone Circle, Derbyshire facing	461

PLATE		PAGE
XXXIX.	Arbor Low Stone Circle - - - - facing	466
	Fig. 1. Urn found in cist of tumulus on the south-east vallum of Arbor Low - - - - -	467
	Fig. 2. Earthenware Pot found in cist of tumulus on the south-east vallum of Arbor Low - - -	467
	Section of Line A-B of Plan - - - -	468
XL.	Arbor Low Stone Circle.—Sections of Vallum and Fosse facing	469
XLI.	Excavations at Arbor Low - - - - facing	471
XLII.	Stone implements found at Arbor Low Stone Circle in 1901 and 1902- - - - - - facing	472
XLIII.	Excavations at Arbor Low - - - - facing	477
	Fig. 3. View of Arbor Low from the summit of the tumulus on the south-east vallum - - -	479
XLIV.	Skull and Flint Flakes found at Arbor Low - - facing	481
	Section on line S.-T. of Plan - - - -	482
	Section on line V.-W. of Plan - - - -	484
	Section on line V.-X. of Plan - - - -	484
	Fig. 4. Circular flint knife found at Arbor Low - -	485
	Fig. 5. Circular flint knife found at Arbor Low - -	485
	Fig. 6. Flint knife-dagger found at Arbor Low - -	486
XLV.	Part of a submerged Greek and Roman Foreshore near Naples facing	502
	Fig. 1. Wall painting showing foundation of a building by the sea - - - - - - - -	504
	Fig. 2. Wall painting showing a sea-wall. On the pedestal is a statue of Hercules - - - - -	505
	Fig. 3. Wall painting showing galleries supported by piers in the sea and a triangular foundation resting upon arches - - - - - - - -	507
	Fig 4. Artificial caves at Villa Rosebery - - -	508
XLVI.	A submerged Greek and Roman Foreshore near Naples facing	509
	Fig. 5. Casa degli Spiriti - - - - -	515
	Fig. 6. Casa degli Spiriti, in sectional elevation - -	516
	Fig. 7. Site of Pausilypon Harbour - - -	517

PLATE		PAGE
	Fig. 8. The Temple, Gaiola Region	518
	Fig. 9. The Odeon, Gaiola Region	518
	Fig. 10. The Theatre, Gaiola Region	519
	Fig. 11. A Roman harbour, after a Fresco found at Gragnano	520
XLVII.	Part of a submerged Greek and Roman Foreshore near Naples	facing 521
	Fig. 12. Gaiola Island as it appeared early in the nineteenth century	524
	Fig. 13. Statue of S. Francesco, facing the Isolotti di Gaiola, the site of ancient buildings	526
	Fig. 14. Statue of a seaside Divinity near a group of buildings of rectangular ground plan similar to that of the buildings which formerly stood on the Isolotti di Gaiola	526
	Fig. 15. Northern House, Gaiola Channel	527
	Fig. 16. Scuola di Virgilio	527
	Fig. 17. Gaiola Channel, looking east	528
XLVIII.	Part of a submerged Greek and Roman Foreshore near Naples	facing 531
	Fig. 18. Tufa Quarries, Trentaremi Bay	533
	Fig. 19. Posilipo as seen from Naples	535
XLIX.	Panoramic View of the Coast of Posilipo in 1710	facing 538
L.	Palace of Donn' Anna Carafa at Posilipo	facing 540
	Fig. 20. Cala SS. Pietro e Paolo as seen from the north end of the Cavalcanti Tunnel	541
	Fig. 21. Plan of House and Cave on Grotta S. Giovanni Headland	542
LI.	Recent and Ancient Coast lines of the Phlegraean Fields	facing 544
	Fig. 22. Plan of the Tunnel in the Rock of the Lazzaretto di Nisida, and of the ancient and modern harbour works	547
	Fig. 23. Lazaretto di Nisida, North End of Passage	548
	Fig. 24. Lazzaretto di Nisida, South End of Passage. The upper part is modern	549
	Fig. 25. Seaside houses under Tufa Cliff at Bauli	550
	Fig. 26. Roman house at Bauli	551

PLATE		PAGE
	Fig. 27. The Great Cave at Misenum - - -	553
	Fig. 28. The Great Cave at Misenum - - -	554
	Fig. 29. Elevations and Plans of Submerged Chambers near the Grotta Dragonara - - - -	555
LII.	Exterior View of the Cathedral Library at Worcester facing	561
	Fig. 1. Titles from MSS. in the Worcester Cathedral Library	565
	Fig. 2. A typical binding in the Worcester Cathedral Library	568
LIII.	The Garden-house, Beckett House, Shrivenham - facing	571
LIV.	The Garden-house, Beckett House, Shrivenham - facing	572
LV.	Cheek-piece of a Roman Helmet found at South Collingham, Notts - - - - - - facing	573
LVI.	A pair of Silver Parcel-gilt Altar Cruets, dated 1518 - facing	574

ADDENDUM AND CORRIGENDUM.

Page 299, line 15 - - For "*taute*" read "*caute*."

By an oversight the name of Mr. F. HAVERFIELD, as responsible for the Map of Roman Britain, was omitted from Plate LVI. of *Archæologia*, vol. LVII.

XIII.—*Charters of Harmondsworth, Isleworth, Heston, Twickenham, and Hampton-on-Thames.* *By* T. F. Kirby, *Esq.*, *M.A.*, *F.S.A.*

Read 5th February, 1903.

The priory, church, and manor of Harmondsworth, near West Drayton, in Middlesex, with its subinfeudations of Padbury's, Barnard's, and Ludington's, belonged to the Benedictine convent of the Holy Trinity and St. Katherine at Rouen. Who gave them to that house I know not. Tanner[a] merely says that the priory was a cell to the monastery at Rouen, and Dugdale[b] is not more explicit. I see by the presentment of a Middlesex jury in Michaelmas Term, 44 Edward III., that Robert, then prior of Harmondsworth, held the church and two carucates of land by the gift of one (they do not say which) of the king's progenitors by the tenure of distributing weekly amongst the poor of the place three bushels of "wastyl" or best bread. The prior was indicted for that he had failed to distribute the bread during the last twenty years, and he pleaded, with what result does not appear, a charter of Privileges granted to the monks at Rouen by Henry II. and confirmed by Henry III. and Edward I.:

Henricus Dei gracia Rex Anglie dux Normannie et Aquitanie et comes Andigavie archiepiscopis, etc. Salutem. Sciatis nos concessisse et presenti Carta confirmasse Abbati et Monachis Sancte Trinitatis sancteque Katherine de Monte Rothomagensi omnes donaciones elemosinarum terrarum et hominum, que facte sunt eis tam in ecclesiis quam in rebus et possessionibus mundanis. Quare volumus et firmiter precipimus quod dicti Abbas et monachi et ministri eorum teneant et habeant omnes elemosinas et possessiones suos cum sacha et sacca et thol et theam et Infangenepief cum omnibus libertatibus et liberis consuetudinibus et quietanciis suis in bosco et plano et pratis et pasturis in mariscis et piscariis in

[a] *Notitia Monastica*, Middlesex, iii.

[b] *Monasticon Anglicanum*, vi. 1057.

vivariis et stagnis. In aquis et molendinis. In virgultis et grangiis extra burgum et infra. In viis et semitis et in omnibus aliis rebus et aliis locis quietas liberas et solutas. de Sirra. et de hundredo et placitis et querelis et de murdro et de wapentacha et scutagio et geldis et danegeldis. et assisis. et hidagiis. et de operacionibus pontium. et Castellorum et de Lerwite et de Hengewite et fleamcameswite. et de Blodewite et de fithwite. et de auerpeny. et hundredespeny et de Wardepeny. et quietas de omni Pontagio thelonio et passagio et lestagio et stalagio et de omni servicio seculari et servili opere et exaccione et de omnibus occasionibus et secularibus consuetudinibus. excepta sola justicia mortis et membrorum.·

Hec omnia concessimus dictis abbati et monachis in puram et perpetuam elemosinam pro Dei amore et animabus omnium antecessorum et successorum nostrorum.

Testibus: R. Rothomagensi archiepiscopo; E. episcopo Ebroicensi.[a]

The prior tells us in his plea that his priory is a cell to the convent at Rouen; and that he is one of the brethren of it, appointed by the abbot and removable at his pleasure, *dativus et remotivus*.

In the year 1390 the priory was in the hands of the king in common with the other alien priories. Robert de Beauchamp, late prior, was custodian of it, and eighty marks was the *firma*, or rent which he had to render to the crown. In that year William of Wykeham presented petitions to Pope Urban VI., praying that licences might be granted to religious houses abroad to annex lands in England to one or other of his colleges, and that the Bishop of Hereford (John Trefnant, 1389-1404) and the Bishop of Rochester (William de Botelesham, 1389-1400) might be appointed commissioners to expedite such transactions. He also applied for a licence to annex to his college at Winchester the churches of Isleworth, Heston, Twickenham, and Hampton-on-Thames, the churches of Hamble, Hound, and West Worldham, and the manor of Harmondsworth; and later on, asked that he might be allowed to acquire for his colleges lands in England owned by religious houses abroad, to the value of 500 marks per annum:

Item cum huiusmodi duo Collegia adhuc in redditibus deficiant, cum ex illis custodes, scolares et alie persone degentes in ipsis, ut prefertur, congrue nequeant sustentari, supplicat s. v. dictus episcopus, quatenus ei de bonis ad eum racione sue persone spectantibus, necnon collegiis antedictis emendi et acquirendi a scismaticis[b] religiosis, hospitalariis, aliisque

[a] These witnesses were Rotrocus de Warwick, archbishop of Rouen 1165-83, and Egidius de Perche, bishop of Evreux 1170-79.

[b] The French religious houses were branded as schismatic, because they sided with Clement VII. the pope at Avignon, whereas Parliament had decided in 1378 by stat. 2 Richard II. 1, cap. 5, that Urban VI. was rightly chosen pope, or bishop of Rome, as another reading of the statute hath it.

personis ecclesiasticis, exemptis et non exemptis, extra dictum regnum Anglie consistentibus, alia maneria, terras, grangias, possessiones, et bona mobilia et immobilia qualiacunque infra dictum regnum Anglie consistencia usque ad valorem annuum quingentarum marcarum pro quolibet ipsorum Collegiorum; et ecclesiis religiosis et personis, ad quorum monasteria, ecclesias, seu loca pertinent huiusmodi maneria etc vendicacionem et alienacionem illorum faciendi, licenciam concedere dignemini graciose cum clausulis ut supra etc. *Et signantur per fiat, ut petitur, ut supra.*

Having thus obtained the pope's fiat Wykeham sued out a crown licence, enabling his college at Winchester to acquire and hold property of alien priories to the value of 200 marks per annum. This licence was tested at Westminster, 16th June, 13 Richard II. (1390), and has a perfect example of the great seal in white wax attached to it.

No. 22 is a contemporaneous copy of a crown licence granted 10th March, 14 Richard II., to the abbot and convent at Rouen, enabling them to grant Harmondsworth to the college at Winchester, and the manor and church of Tingewick, Bucks, with the churches of Saham Tony, Norfolk, and St. Leonard's, Sussex, to New College, Oxford.

At the foot of this document will be seen: "Conclusio brevis de exonerando manerium de Hermondesworth," a copy of a writ exonerating, as from the 28th March, 1392, Robert de Beauchamp from the fee farm rent of 80 marks already referred to.

Below are some instructions in another hand, which the late Mr. W. H. Gunner, one of our Fellows, thought to be the hand of Wykeham himself. It must have been dictated by him, if this be not the case:

Rogamus vos specialiter et ex corde quod postquam carta originalis fuerit semel in Scaccario ostensa postea ista copia uti et illam ostendere velitis in communicando cum consilio nostro, et cum Baronibus Remembratoribus et clericis de Scaccario et aliis, et servare cartam principalem sigillatam sigillo Domini Regis sanam et integram et absque dicte carte deturpacione seu sigilli regis eiusdem lesione. *Et ista copia concordat cum originali.*[a] Et faciatis quod breve de exonerando irrotuletur et quod habeamus numerum rotuli in quo dictum breve irrotulabitur et terminum.

Wykeham then sent his private secretary [*domicellus*], one Richard Altringham, to Rouen to negotiate. The result was an agreement to purchase Harmondsworth and Tingewick for the sum of 8,400 francs or gold écus:

[a] These words in a larger hand than the rest.

De bon or de bon aley de bon pois et du Coing du Roy de France. Ces quiex huit mille et quatre cens frans dor dessus diz les deux cens seront pour le convent dudit lieu, pour acheter rentes perpetuelles a ce que ledit monsire levesque soit perpetuelment mis in prieres dudit convent. Item deux cens frans seront pour la chambre dudit abbe, pour emploier au prousfit et gouvernement dudit lieu. Item ledit monsire levesque trouvera et ennoiera une bonne chapelle fournie de ce qui y' appartient a tel Seigneur come il est pour le grant austel dudit lieu pour servir la Glorieuse Trinite, en nom de la quelle leur eglise est fondea. Item ledit monsire levesque trouvera a damp Robert de Beauchamp et a damp Johan le Cellier son compaignon demourons en engletere es manoirs dessus diz, Tant comme il vivront leur vivre de boire et de mengier vestir et chauchier, et tontes autres choses qui leur seront neccesaires pour leur vie avoir et leurs corps soustenir, comme il appartient a avoir aus Religieux de leur estat.

This agreement was made at Rouen, at the house of St. Katherine, on Wednesday, 23rd November, 1390. I have here an exemplification under the official seal of the provost of Paris, dated 26th July, 1392, of a licence by the vicar-general of Guillermus, archbishop of Rouen, ratifying the alienation. The seal is of dark green wax, 2 inches in diameter, with a large fleur-de-lys between, in base, a shield of France impaling Champagne and a triple-towered castle. The legend is:

[✠ SIG]ILLVM [PRE]POSITVRE PAR . . . .

There is also a small round counterseal, but defaced by pressure. The seal is now in two pieces, but the instrument is worth looking at as a sample of French handwriting of that period.

The next document is a letter of attorney, under Wykeham's episcopal seal, appointing Nicholas Stoket and John Ware, clerks, and Richard Altryncham, to receive on his behalf seisin of his purchase, and see to the payment of the purchase money, which was remitted through some firms of financiers at Genoa and Lucca.[a] It is dated at Esher, 9th June, 1392, and attested by John de Swafham, a notary of the apostolic see often employed by Wykeham, whose mark is given at its foot.

The bishop's seal is a fine impression in green wax, but damaged at the top. It is protected by a paper guard.

[a] Emanuel Zakarie, George Cigala, and John Catane "de societate de Cathaneis de Janua": Bartholomew Benchenensis and Ghyno Bartholomew "de societate de Guynise de Luk'": and Anglius Ceba "de societate de Lomelyne": and Terame Catane "de societate de Grylle" of Genoa.

Next comes the grant by the abbot and convent "de licencia illustrissimi Principis et domini domini Ricardi Regis Anglie secundi," dated 15th October, 1391. It is in good preservation, and a contemporaneous wag has improved the initial S by inserting in its flourish the likenesses of a mitred bishop (very like the caricatures of Lord Chancellor Brougham), a good-looking layman, and a dolphin.

The official seals of the abbot and the convent are both perfect, in dark green wax. That of the convent is a pointed oval 2⅝ inches long, bearing the usual representation of the Holy Trinity, with the marginal legend:

✣ S' ꝺONUꝺꝺNTUS : SC̄Ꝺ : TꝺRNITATIS : IN : MONTꝺ : Sꝺꝺ : KATꝺRINꝺ : ROTHOM.

The abbot's seal represents him standing in mass vestments with crosier and book. On either side is a fleur-de-lys in a lozenge. The legend is:

✣ S IOHIS ABB̄IS SANCTꝺ TꝺRNITATIS IN MONTꝺ Sꝺꝺ
KATꝺRINꝺ PROPꝺ ROTH.

The two seals seem to be the work of the same engraver.

The next document is a release, bearing the same seals, both of which are perfect, and an elaborate initial letter.

Then we have an acquittance for the purchase money, 8,600 francs, dated 25th October, 1391, with the same seals, also perfect; and an acquittance under the abbot's seal only, of the same date, for "summam quadraginta librarum Tournencium pro viagio fratris Johannis Fecourt monachi nostri ac Prioris Prioratus de Bisiaco in Anglia facto."

The churches of Isleworth, Heston, Twickenham, and Hampton-on-Thames were purchased of the monks of St. Valery, in Picardy, and were conveyed to Winchester College in 1391. The conveyance is beautifully written, and both the seals appended to it are perfect, and of dark green wax. The chapter seal is a pointed oval, 3 inches long, of early twelfth-century date, with a seated figure of an abbot in mass vestments, holding a crosier in his left hand and a book in his right. The legend, which begins with a representation of the Holy Dove, is:

SIꝺILLVM CAPITVLI ꝺCCLꝺSIꝺ SC̄I WALBRICI.

The abbot's seal is also a pointed oval, 3⅛ inches long. It represents a mitred abbot standing under an elaborate canopy and giving the blessing. In

base are two shields, with a fleur-de-lys between. The dexter bears the arms of the abbey: France, with a crosier on an escutcheon of pretence. The sinister has the abbot's own arms, three escutcheons and a label of three points (Boubers).

The Archbishop of Rouen and the Bishop of Evreux were attesting witnesses.

The purchase was completed 14th June, 1391, at an inn at Boulogne, "in hospicio honesti viri Aliani de Kawdebroune domicelli in suburbio Bolonie," where Stoket, Ware, and Altringham paid the purchase money and gave an undertaking to pay John Carpenter, treasurer of the convent, a further 200 francs at St. Peter-ad-Vincula (1st August) then next. This undertaking is evidenced by a notarial act under the hand of John Arnold.[a]

Here is John Carpenter's acquittance for 750 francs "pro meis laboribus circa negocium alienacionis possessionum monasterii predicti in Angliâ;" and here is another acquittance of his for another 200 francs for the fixtures and property of the churches. The seal which is appended to each document is in red wax and fairly perfect. It is a pointed oval, 1½ inch long where whole, with the figure of an abbot in mass vestments and holding a crosier, on a cross hatched ground. Legend:

* SIGILLV̄ THSAVRII SC̄I WALARICI

The seal is of thirteenth-century date.

And here is another acquittance, of same date, by the Prior, John de Jonnalle, for 550 francs for his trouble in negotiating the sale. His seal is circular, in same red wax, 1 inch across, but much broken. It bears a shield of the abbey arms, France with a crosier on an escutcheon of pretence, with the legend:

+ S'AS CAVS' DALA IVSTICIH DA LAGLISA S'WALARI

And here is a receipt by John Carpenter, the treasurer, for 200 francs, his share of the plunder. The seal is that of the treasurer of the abbey, as before.

The last of the series of acquittances is a joint one by the prior and Carpenter for 300 francs, of which each monk (number not stated) was to receive ten francs, and Carpenter the rest.

The total purchase money was therefore 2,000 francs, of which Carpenter got the lion's share. Apparently the abbot got none of it, possibly because there

[a] A notary residing in Kingsgate Street, Winchester, who seems to have accompanied Stoket, Ware, and Altringham as their legal adviser.

were estates appropriated to his maintenance, of which this was not one. The seals of the abbey *ad causas* and of the treasurer are appended.

All these payments at Boulogne were sanctioned by a privy seal dated 26th April, 14 Richard II., 1391, licensing Wykeham to send money out of the realm for his purchases by cash remittances or bills of exchange:

Per quascunque personas sibi placuerit licite valeat mittere, de tempore in tempus, quando et quociens voluerit, tam in moneta auri vel argenti, quam per excambium, tot summas pecuniarum quot sibi placuerit, et prout eidem episcopo indiguerit, pro solucione adquisicionum predictarum, ac eciam pro omnibus aliis custubus ex causa predicta faciendis, prout eidem episcopo melius videbitur expedire. Et preter hoc concessimus, quod mercatores indigene et alienigene, cuiuscunque nacionis existant, licite facere et mittere valeant ultra mare literas cambitorias omnium summarum predictarum, de tempore in tempus, prout indiguerit, et prout ipsi per predictum episcopum ex causa predicta fuerint requisiti, sine occasione vel impedimento nostri vel heredum nostrorum, seu ministrorum nostrorum quorumcunque, aliquo statuto seu ordinacione incontrarium facta non obstante.[a]

I exhibit for the sake of the seal, which is almost perfect, the counterpart of a lease of the rectory of Isleworth, granted 25th June, 33 Henry VI., to John Bokyngham, prior of the house of Jesus of Bethlehem, of Sheen. The seal of Sheen priory is a pointed oval one, in red wax, 1⅞ inches long. The subject is the Adoration by the Shepherds of the Infant Christ, who is shown lying in a manger, with the Blessed Virgin Mother on one side and the ox and the ass behind. The legend is:

S' coe domus ihu xpi de bethlem ordinis cartuſ' in ſhene.

And here is an original lease granted 25th June, 13 Henry VI., to the same prior, which must have been given up on a renewal. The Winchester College seal is all but perfect, red wax.

Harmondsworth proved a valuable acquisition, although the repairs of chancels came heavy at first. The college kept the manor farm in their own hands and managed it by a serjeant or bailiff, relying for labour on the duty work of a multitude of customary or free tenants of the manor, as well as the enforced services of cotters and "native" or bond-tenants—a burden against which the customary tenants struck in the year 1461, when their services were commuted for money payments. Traces of commutations of this kind appear earlier.

[a] The exportation of gold and silver, except for the payment of the king's garrisons over the seas, had been forbidden since 1381 by 5 Richard II., stat. 1, c. 2.

Out of a number of computus rolls existing at Winchester College I am only going to refer to one, that of Thomas Lane, serjeant of Harmondsworth, for the year ending at Michaelmas, 22 Richard II. (1399). It is in Latin, of course. I am giving it in English and cutting it short :

	£	s	d.
Arrears	32	15	8
Rents of assize for Harmondsworth Subbestone[a] Southcote and Longeford,[b] £22 8 11½ and Risslepe (Ruislip) 27/6	23	16	5½

Firma.

Rent of fishing in river let to William Heldare except a moiety of the mill pond (de la Poule) reserved for warden of the College and other visitors, 28/-, rent of mill demised to William Flemyng for five years, £6 13 4 . . £8 1 4

Pensions.

Twenty shillings issuing out of church of Hestyng (Heston) and forty shillings issuing out of church of Saham Tony, not received these six years.

Venditio operum.

Three shillings and fourpence of Godfrey atte Purye in lieu of so many days duty work as arranged with abbot and convent of St. Katherine; and two shillings and three pence in lieu of 18 days "manualia opera" at 1½[d] . 0 5 7

Exitus Manerii.

Sixteen shillings and five pence half penny customary pannage of swine at Martinmas, one penny for every head over one year and a half penny for every head under: 7/8 for skins of one horse, two oxen and three cows that died: 22[d] for eleven lambskins with the wool on, and 16[d] for sixteen clipped skins of lambs that died or were killed: Nothing for apples in garden, because none this year: 2/- for grass of two acres in Colebroke[c] and nothing for grass of the acre in "la Wereyte" because it is reserved to the lord's beasts: 3[s]/4[d] of ds. de la Poule for water taken from the river: 17/- for 34 dozen pigeons: nothing for turf (morercha) sold from the moor: nothing for osiers (virgæ, "rods") up to 10,000 because the right to cut that number is let with the fishing: 2/- of the minister of Hounslow, Peter Hermondesworth and

[a] Now Sipson, a hamlet three-quarters of a mile east of Harmondsworth. *Cf.* Ebbesham, now Epsom.

[b] Now Longford, a hamlet on Bath road, half a mile south-west of Harmondsworth.

[c] Colnbrook, two miles south-west of Harmondsworth.

William Chychely for turves cut in the moor to mend the weirs (les wares) of their mills: 12^{d} for tithe of hemp: 7/1 for 85 gallons ale from "Tolfystre" viz. a gallon out of every brewing at 1^{d}: 60/- for assignments of timber (de tallio custumario) no beech or lop sold this year:[a] 2^{s}/4^{d} for hay sold off ten acres: 21^{d} for profits of late Amice Robinet's cottage while in Lords' hands over and above the quit rent:[b] 12^{d} for heath and 13/4 for straw sold: £7 11 8 for dairy (lactagium) of 26 cows and their calves, and 2/8 for rent of two cows let to William Cauche:[c] 35/- for thirty stone of wool sold at 14^{d} the stone of eight lbs. £16 6 5½

Venditio frumenti.

£46 8 10½ for wheat at prices varying from 6/8 to 5/8: £35 12 2¼ for barley at prices varying from 6/8 to 5/8: and 47/2½ for "haras" (probably pulse) at 7/4 the quarter £84 8 3¼

Venditio stauri.

3^{s}/4^{d} for horse past work (debilis): 2/- for another: 50/- for five oxen at different prices: 38/7 for six worn-out cows at from 11/- to 6/6 each: 2/6 for a boar, and 66/8 for two sows and thirty-seven pigs supplied to Winchester College: 2/6 for pig sold at market: 6/- for 18 geese, and 13/4 for 40 capons, all at 4^{d} each: 12^{s} for 200 hens' eggs and 2/4 for a cygnet . . . £9 18 3

II. in denariis (heriots in money).

3^{s}/4^{d} for heriot of Henry Drayton and Isabel his wife: 12^{d} value of heriot of John Bodmyn; 2/- value of sword, the heriot of William Reynolds: 3^{s}/4^{d} value of heriot of Thomas Pompe[d] 9 8

Perquisita.

57/3 at Court held on Wednesday next after Conception B. V. M. (Dec. 8): 31/8 at Court held May 3^{d}, including fees 4 8 11

[a] The right of customary tenants to timber for repairs was limited in this and most other manors by a custom allowing it to be taken by assignment of the steward only, as a check upon waste. The 60*s.* here represents fees paid by tenants for such assignments.

[b] The lords of the manor appear to have entered on her death and taken the profits, pending the admission of the next taker.

[c] A custom of letting a dairy of cows at a yearly rent of so much per cow still obtains in many parts, and is common in Wilts and Dorset.

[d] The lords took the best chattel of a tenant as a heriot on his death. In the case of the Draytons, it was compounded for by a money payment, in the other cases the thing seized seems to have been redeemed at a valuation.

Super computum. 5 17 8¾
Sum total of receipts with arrears 186 8 4

Resolutio redditûs.

Repaid lord of Drayton for turves dug in his manor, 2/: Short on sundry rents received, 1/10 . . . . . 3 10

Custus carucarum.

Iron and maple[a] for three ploughs, 8/4: three iron shoes and nails for same, 18d: shoeing four horses and three oxen for cart as well as plough,[b] 12/. The smith also shod the forefeet of two horses *gratis* with his own iron, according to the custom. Sole pieces and "chips" to a plough and putting it together (in caruca chippanda et vestienda), 6d: one plough-wheel 10d: two pairs of measuring tapes (acrestrenges), 6d: smith's wages making two ploughs, 6/2: two yokes, 8d: new plough bought, 13d: binding same with iron, 3d: harness, 4d 32/2

Custus carectarum.

Four pairs of cartwheels, 18/-: clouts[c] and nails, 3/6d: four axletrees, 2/6: greasing same, 12d: three horse collars, 2/6: two pairs of traces, 15d: a cart-rope, 18d: a cart-saddle with pack (sella carectaria cum basso), 13½d: one old horse collar, 8d: hooping two pairs of buckets with wooden hoops, 4d: girths, cruppers (rerecordes) and "whippecordes," 6d: nine headstalls, 9d: three iron hurturs,[d] 12d 34/7½

Emptio frumenti et stauri.

Five quarters, four and a half bushels of oats at 3s/4d, 18-6½: a horse, 22s: two oxen, 25/8: two more, 26/8: a cow, 11/-: a bull, 9/6: a goose & four ganders, 2/6 . . . . . 115/10½

Custus domorum cum necessariis.

Carpenter mending beam in porch of barn, fixing groundsill and new studding[e] two of the bays, 3s/4d: 7550 tiles for porch, 37/9, and 1 qr. 3 bus.

[a] This is the indigenous *acer campestre* or wild maple, so common in hedgerows. The wood is fine grained and tough, but of no great size.

[b] Oxen used for ploughing were shod on their forefeet only.

[c] Iron plates, each going half way round that part of an axle which works within the stock of a wheel. *English Dialect Dictionary*, i. 162.

[d] Hurturs are the shoulders of an axle against which the wheel rubs. *English Dialect Dictionary*, iii. 291.

[e] "Studs" are upright pieces of timber morticed into the groundsill, on which weatherboard is now and "wattle and dab" was formerly laid.

lime, 2/-: cartage of tiles & lime in own carts, four journeys, 12^{d}: four bushels of oats for the horses, 20^{d}: 700 laths for roof of porch & small building next granary, 3/6: 5000 lath nails at 14^{d}, 5/10: 250 hip tiles, (hepetiell) gutter tiles (gotertiell) and ridge tiles (ryggetiell) to repair ridges and gutters of roofs of porch and small building, making good other defects, and tiling wall between building and north end of the hall, 12/6: making said wall of mud, as per contract, 5/9: carting the tiles from Watford in lords' own cart, and paid for 4 bushels of slack lime, 12^{d}: expenses of serjeant riding hither and thither on these matters, 8^{d}: tilers roofing porch and building and making good damage by tempest under contract, 26/4: groundsill for carthouse, a contract, 5/-: 200 laths to its roof, 12^{d}: a thousand more, 14^{d}: two bushels of tile pins, 16^{d}: procuring same from London, 3^{d}: thatcher coating roof of large barn, own straw, two days, 12^{d}: his man (servitor) same time, 3^{d}: thatching mow of pulse (magnum mullonem de puls) five days, 2/6: his man, 10^{d}: three men cutting weeds in river by the highway between Longeforde and Colebroke, and between Highebrygge and Lowegate, to save the lords' meadow from being flooded, a contract, 3/-: making twelve quarters of malt, 2/-: doctoring pigs, 12^{d}: a winnowing fan to winnow lords' corn, 16^{d}: parchment for this roll, 16^{d}: washing and shearing sheep, 3/0: tar & ointment for them, 3/8: ruddle, 6^{d}: servants at Court house for their oblations at Christmas and Easter, 20^{d}: spars for thatching, 10^{d} £6 13 9

Custus molendinorum.

Two carpenters at work eight days mending base of mill (le mulbede), its top (la copis) the cogwheel, the waterwheel, a bridge, a beam, and making one new 'sporles,' each at 6^{d} a day, 8/: four planks, 14^{d}: one 'ryne' one 'spyndele' and eight stirrups, part of old and part of new iron, 5/10: bought cask (dolium) to make hopper, 2/3: two coopers making same two days, 20^{d}: four hoops, 8^{d}: nails, 2^{d} 19/9

Custus cancelli.

Nine lbs. wax for tapers and candles at 7^{d}, 5/3: making them, 4½: two carpenters two days and a half on new door in chancel, 2/6: five 'estrychbordes'[a] for same, 20^{d}: two hinges, 18^{d}: one hundred white spikenails, 2/6 . . 13/9½

Trita et ventilata.

Two hundred and forty-five quarters of wheat and 3 qrs. 3 bus. of curall[b]

[a] This word is not in English Dialect Dictionary. I find "Estregbordes, tabulæ abiegnæ" in Ducange. If these boards were really Norway deals, it is an early instance of the use of that material in England. Our Fellow, Mr. W. H. Richardson, refers me to Cowell's Interpreter: "Estreg-bords. Eastern boards or deal or firs, brought from the Eastern parts for wainscot and other uses."

[b] Coralls or dross, an inferior sample of wheat, separated from the rest by dressing.

at 4ᵈ, £4 2 9¼ : 173 qrs. of barley at 3ᵈ, 43/3 : 18 qrs. of "haras" at 3ᵈ, 4/6 : 6 qrs. 3 bus. of oats at 2ᵈ, 12¾ᵈ 6 11 7½

Sarculatio et falcatio.

Hoeing the wheat this year because the customary tenants hoe it every third year, and this is not the year, 5/8 : mowing Burymede, nothing, because the customary tenants mowed it : paid for their nooning (meridiatio) as the custom is, 13ᵈ : two acres called Stockeresmede mowed by customary tenants, as the usage is, 12ᵈ : spreading and carrying the hay, nothing, because the customary tenants did it : mowing acre called Langemede by contract, 7ᵈ : spreading and carrying the hay, nothing, because the servants at the Court-house did it 8/4

Custus autumpnalis (*harvest home*).

Four qrs 3 bus. extra bread, 26/3 : ten qrs. 3 bus. extra malt brewed, 56/- : butcher's meat, 30/4 ; besides nine wethers from stock, value 9/-, all the above consumed in seven weeks, while the bailiff, the water bailiff (ryperone), the beadle, the carter, the six ploughmen, John Hyne the swineherd, the dairymaid (daia) the two hay pitchers (tassatores) the cook, the brewer (who is also baker) and the three cowmen eat at the lords' table, and the sixty-six customary tenants were reaping and tying the corn at "Lovebedryp," getting one meal a day only. Salt fish, mackerel, and herrings, 14/6 : cheese, butter and eggs, 11/10 : onions and garlic, 13ᵈ : two bushels of salt, 6ᵈ : three geese, 9ᵈ : sixteen pairs of gloves, 23ᵈ :[a] dishes, cups and plates, 4ᵈ. The said customary tenants reap, tie and shock 30 a. of wheat and 21 a. of "haras," and the bondmen (nativi) reap and tie 39 a. of wheat, 31 a. of barley, and 18 a. of haras. Forty-one more acres of wheat, 51 of barley, and 9½ of oats are reaped, tied and put in shock by contract for £3 2 7½. So the cost of harvesting works out 9ᵈ per acre for wheat, 11ᵈ for barley and 6ᵈ for oats. Wages of three "pedanei,"[b] who turned the corn and three "tassatores," who pitched it, 41/-, three receiving 20/- and three 21/- for the harvest. Brewer's wages in harvest, 6/8 : water bailiff, 6/8 : the cook, who was sometimes in the harvest field and sometimes superintended the pitching (erat super tassam), 6/8 : Henry Childemulle, six men from Harrow, and eight men from Harmondsworth and Longeforde, who mowed and reaped with our people (cum supradicta familia) before the corn was carried, had each sixpence a day, say 22/6 . . . . 11 7 7½

Besides stock consumed to value of 4/2/4

[a] "Pro famulis manerii," according to another year's computus.

[b] In another computus, a man who was hired to wait when the warden was at the court house is called "pedaneus."

Expensæ custodis, sociorum Collegii et senescalli.

The warden, John Bekynton, Robert Lechlade and William Pope[a] coming to hold a court of the manor, take stock, audit accounts and do business at Heston and Isleworth, "per vj bullas," i.e. by six vouchers, 31/10: warden, John Boseham, William Pope and William Morys coming again on business, per ij bullas, 16/11 . . . . . 48/9

Stipendia.

Serjeant, 20/-: beadle, 20/-: carter, three ploughmen, and three herdsmen at 10/-, 70/-: dairy tenant (firmarius vaccarii) 5/10: swineherd, 4/-: shepherd, 13/- 119/10

Expensæ forinsecæ.

Richard Prentys of Wexbrygge, a fine laid on him two years ago and now paid by warden, 6/8:[b] Thomas Culverhouse, price of two bushels of wheat given to him by warden "ut bene se haberet erga tenentes," 18[d]: Walter Richeman, price of three bushels of wheat given to him by warden, 3/-, and Robert Martyn, price of one bushel given to him by warden, 9[d].[c] Paid fees for eighteen writs of *supersedeas* to relieve us from payment of the tenth and the fifteenth, 8/-[d] paid clerk who engrossed them, 4[d]: serjeant's expenses riding three times to fetch them, 12[d]: paid dairy tenant by warden's order for attending two cows in danger when calving, 5/10: paid pope's nuncio for churches of Harmondsworth, Heston, Twickenham, and Hampton 13/- for the two pence in the £ granted by the clergy: paid bailiff of the hundred for arrangements with sheriff of London about the hamlet of Longeforde and the bridge there, 13/4: driving 19 pigs to Winchester College and a boar and 20 pigs another time, the expenses of two of our servants on the road, 4/10: John Gussich, the warden's clerk, his expenses when he came here after money, 14[d]: paid sheriff of Middlesex to be excused attendance at hundred court of Ossulston this year, 2/6: expenses of warden's clerk when he came after money in January, 16[d] 63/3

Sum total of all expenses	47	13	2½
Balance of receipts over expenses	138	15	1½

Allocaciones.

Serjeant for divers expenses incurred in autumn through this year's heavy rain, 40/8½ and 11[s] a gratuity to bailiff's wife: also 48/3 for attention to divers matters and disallowances 4 19 1½

[a] Two of the fellows and the steward.

[b] He had been amerced in the manor court, but refused to pay, and this way was adopted of writing off the fine.

[c] Probably seed-corn.

[d] These writs were granted on production of the college charter of Privileges.

Denarii (cash payments).

Master John Morys, warden of the College of Saint Mary Winton, and John Boseham and Robert Lechlade, bursars, *per indenturam* . . .	53	18	11

Liberatio forinseca.

Thomas Bergamene for housing tithe corn at Heston rectory, 100/2[d]: for work on chancels of Heston and Isleworth and the new grange not completed last year, £43 0 5.	£48	0	7
Sum of allowances and payments	£106	19	5½
Balance due at foot of roll	31	15	8

On the back of this roll the serjeant accounts for 258 quarters 3 bushels wheat, 3 quarters 3 bushels 3 pecks "curall," 178 quarters 3 bushels 1 peck of barley, 24 quarters 6 bushels pulse, 12 quarters 1 bushel oats, and 12 quarters 6 bushels malt. He has sown 110 acres of wheat, 82½ acres of barley, 39 acres of pulse, and 9 acres of oats, and has 19½ acres fallowed (*warectatæ*) for next year. There are 41 loads of hay. The live stock consists of 6 cart horses, 3 plough-oxen (*affri*), 13 other oxen, 26 cows, 2 heifers, 1 yearling, 178 wethers, 2 lambs, 2 boars, 3 sows, 12 pigs, 45 porkers, 1 goose, 4 ganders, 9 capons, 1 cock, 5 hens, no pullets, 2 cygnets, no wool, no lambskins (all sold).[a]

The serjeant then sets forth the customs of the manor with regard to duty work.

Consuetudo fabri.

The smith of the manor makes one plough, finding iron and maple, and shoes two plough oxen (fore feet only) at his own expense.

Arrentata et licentiata.

Sixty-seven days' work to be done by 38 yardlanders and 39 half yardlanders. Each of them who hath a plough ploughs and sows one acre with seed from the manor farm; and he who hath no plough threshes or does such work as he may be put to, one whole day. And sixty-seven more days' work done by same yardlanders and half yardlanders, each of whom etc. (as above).

Clausura.

Fourteen and three quarter perches enclosed from the waste, every four yardlanders and eight half yardlanders enclosing one perch.

[a] In 29 Hen. VI., fifty-three years later, the bailiff accounted for 4 horses, 5 plough-oxen, 14 other oxen, and a bull, 24 cows, 4 boars, 2 sows, 41 porkers, 6 swans, 29 geese, 13 peacocks, 5 capons, 1 cock, 6 hens.

Manualia.

Sixty-six tasks of four customary tenants, each of whom finds one hand for twelve days. Three more find one hand each for six days between the feasts of St. Michael and St. Martin to do whatsoever task may be set them.

Opera purgationis ripariæ.

Sixty-seven tasks of 38 yardlanders and 39 half yardlanders, each of whom finds a man to cleanse the river[a] when warned for one day from the first hour of the day to sunset, every man receiving one meal, a dish of meat or fish.

Opera sarculationis bladorum.

Sixty-seven tasks of said yardlanders and half yardlanders, each of whom finds a labourer for one day, and he receives one meal (repastus) viz. bin et bin,[b] a dish of meat or fish.

Opera falcationis prati.

Sixty-seven tasks of said yardlanders and half yardlanders, each of whom finds a man with scythe to mow and spread the hay in Burymede.

Opera levationis feni.

Two hundred and twenty-four tasks of 38 yardlanders, 39 half yardlanders, and 47 cotters, each of whom finds one man with his tenants, if he has any, to load, rake and stack the hay, three whole days if need be.

Cariatio feni.

Sixty-seven tasks of said yardlanders and half yardlanders, each of whom comes with his cart, if he has one, and carts three loads of hay from the field to the manor farm: and if he hath no cart, he pitches three loads of hay.

Precaria de prato.

Sixty-seven extraordinary tasks of said yardlanders and half yardlanders, each of whom finds a man at "Lovebedripe" to reap and tie corn there one day, from sunrise to sunset, receiving one meal, viz. bin et bin, a dish of meat or fish.

Waterbedripe.

One hundred and twenty-four tasks of said yardlanders, half yardlanders, and cotters

[a] The Colne.

[b] I do not know what this is, unless it be a perversion of "a mon bie et a mon bon" id est, cum commodum et opportunum videbitur.—Ducange, *sub voc.* Bonum. I translate it "potluck."

each of whom finds one man to reap, tie, and gather the corn one day from sunrise to sunset, receiving every thirteen of them three loaves.

Precaria magna.

One hundred and twenty-three extraordinary tasks of said yardlanders, half yardlanders, and cotters, each of whom finds a man to reap, tie, and gather corn in case of necessity, one day from sunrise to sunset, receiving at the manor farm a dish of pottage, beans, or pease, and a dish of meat or fish, with as much cheese as he can eat.

Cariatio bladi.

Sixty-seven tasks of said yardlanders and half yardlanders, each of whom, if he hath a cart, carts three loads of corn from the field to the manor farm, getting nothing for it either for himself or for his horses; and he that hath no cart, pitches three loads of corn.

We now see what the customs were against which the tenants struck in the fifteenth century.

The little subinfeudation of Padbury's was let temp. Hen. VII. on a land and stock lease. The College found the land and buildings and live and dead stock, and the tenant made the rent and his own living out of the increase of the live stock and the yield of wheat, barley, and pulse, after reserving enough for seed.

The following inventory was taken in the autumn, when the wheat was sowed and the barley and pulse were in the granary ready for spring sowing. The quantity of wheat sown works out about $2\frac{3}{4}$ bushels per acre, from $2\frac{1}{2}$ to 3 bushels being the quantity sown at the present day.

Padburies.

Computus Rob^{ti} Taylour, firmarii ibidem, a festo S. Michaelis Archangeli anno regni Henrici vij j^{mo} ad Idem festum extunc proxime sequens anno eiusdem Regis ij^{do}.

Arrearagia	8	4	1

Firma.

Rent of manor, together with divers lands and rents of free tenants in Sibbeston demised to said Robert for a term of years, this being the seventh; and 40/- of Thomas Wattys for Bernard's, with 20½ acres appertaining thereto, and 12^{s} for acres of land late Ludington's demised to him . . .	7	0	0
Total	£15	4	1

Custumarii tenentes de Hermondsworth . . . . . Nichil.

Liberatio denariorum.

	s.	d.
Paid to bursars of College of St. Mary of Winchester 31st January by the hand of Thomas Asshebury *ut per indenturam*	46	8
To same by same 24th April on Easter progress	26	8
To same by Thomas Watte, Farmer of Bernard's and Ludington's, 23d April	20	0
To same by same	66	8
To same by hand of Richard White 7th November	20	0
	£10	0 0

Allocatio.

Allowed for repairs of new manor house at Harfhondsworth as paid by vicar	13	4
Balance owing	4 10	9

	s.	d.
Whereof owing by John Barowe, a former tenant of Bernard's	24	1
By John Ravener do.	6	8
By Thomas Dunmowe do.	60	0
By Thomes Watte do. nil, quia recepit quietancium. .		
By Robert Taylor present tenant of Padbury, nil, quia recepit quietanciam		

On the back of this roll is Taylour's inventory :

Wheat in 35 acres 11 qrs. 4½ bus.
Barley in store 13 qrs
Pulse in store 5 qrs.
Horses 3.
Oxen 4 value 48/-.
Wethers (multones) 91 value 20d each.
Rams (hurcardi) 5.
Ewes (oves) 28, value 14d each.
Lambs 40.

Utensilia pro carucis.

One wheeled cart ; one solecarte (sledge) ; nine yokes ; two iron staples with gear for a pair of draught oxen, value 14d ; one coulter ; one ploughshare, weight 12lbs. ; one solcoer ;[a]

[a] Spelled solecowys in another inventory. It seems to mean the sole of a plough.

one paddle, value 14[d]; one pair of wheels with wooden frame and tumbrell; two iron linch pins, value 6/-; one cart body with ladder,[a] "braypynnes" and iron "hurturs": one axle-tree with eight clouts and two iron linchpins, value 5/8: one cartrope, 4[d]: one rake[b] for feeding oats, 12[d]: three harrows with sixty two iron teeth in good order (hercie cum lxij cavillis ferri abilibus): a dung fork and a hoe, 6/-: two sacks, 12[d]: fourteen "clates"[c] for the lord's sheepfold.

Bernard's and Ludington's.

One cart frame with body, ladder and linchpins, and iron takke;[d] one tumbrel with body for dung, 4/; three collars with two pairs of traces, one cartsaddle with pack: a set thill harness, 3/4; a cart rope, 8[d]: a fork for pitching wheat, 3[d]: seven leather headstalls with rings and links.

[a] A cart ladder is a frame work fastened on either the front or rear of a cart to increase its carrying capacity.

[b] Rake here must mean "manger" not rack, unless the oats were fed in the straw.

[c] Cleats, upright stakes to which the hurdles composing the fold are fastened by means of withes.

[d] Takke, qy "tack" the fastening of the cartbody to the frame.

BROUGHAM CASTLE, WESTMORLAND.—TWO VIEWS FROM THE NORTH-EAST.

Published by the Society of Antiquaries of London, 1903

XIV.—*Brougham Castle, Westmorland.* *By* E. Towry Whyte, *Esq.*, *M.A.*, *F.S.A.*

Read 12th March, 1903.

About a mile and a half south from Penrith on the main road from Carlisle to York and on the Westmorland side of the river Eamont, which is the boundary between the two counties, stand the ruins of Brougham Castle, one of the most important strongholds of the great Clifford family, who owned no less than four castles in the county, namely, Brougham, Appleby, Brough (under Stanmore), and Pendragon, and also Skipton in Craven, Yorkshire. From comparatively early times the site of this castle has been a place of some importance, as the Romans had here a strong camp, the remains of which are still to be seen in the field to the south of the present building. The name of this camp was *Brovacum*, but it has been spelt in various ways. It was a rectangular parallelogram surrounded by a single ditch about 75 feet broad with rounded corners, and had a rampart on the inside. There has also been a berm or terrace between this rampart and the ditch below the main defensive works, which were of timber. No trace of the entries to the camp now remain. The ditch on the south side is still complete, and portions on the east and west. Mr. G. T. Clark, in a paper in the *Proceedings of the Cumberland and Westmorland Archæological Society*,* gives the area within the ditch as 113 yards by 134 yards at the present time, but says it was most likely 198 yards originally, as that was the proportion of the Brough camp. The reason for placing this camp where it is was to guard the ford across the river Eamont where the road from York to Carlisle crossed that river. This ford I think was a little further down the stream than the present bridge, at a point where it is very shallow in summer, but during the winter and spring it must have been often dangerous and at times impassable. Of course the bed of the river may have been quite different in Roman times, but probably its course was much the same

* Vol. vi. 15-26.

as at present. If I am right as to the site of the ford, the Roman road was continued in a straight line from about the Countess's Pillar to the brow of the hill above the river, down which it went at a sharp angle to the water, and then straight across the marshy field until it meets the road as traced by the ordnance surveyors. The camp stands on the south side of the river about 30 feet above it on flat land; and if Mr. Clark's suggestion as to the original size be correct its north-east corner was about 50 yards distant from it. On the opposite side for some considerable distance must have been marsh land, probably often flooded, whilst still further north rose the conspicuous hill now known as Penrith Beacon, under the southern flank of which the Roman road ran in an almost straight line to the next important camp, *Voreda*, near the village of Plumpton, about five miles north-north-west of Penrith. The camp was also, in all probability, approached by another road, which ran past the present Brougham Hall and across the river Lowther near the bridge and on to Yanwath, where it joined the road that goes over High Street, which in places attained an elevation of 2,200 feet. A third road I think led to the camp from the south, going over Crosby Ravensworth Fell and so on to Lancaster. The main road all the way from Brough Castle to Carlisle is a most wonderful piece of engineering, when the probable condition of the country when the Romans made it is considered. Its gradients are seldom excessively steep, and yet it keeps an almost straight line for miles; and this was surveyed and made at a time when the whole country was a dense forest and the surrounding hills inhabited by a warlike and hostile race. It is rather surprising, considering the military importance of *Brovacum*, that it has not yielded more important monuments than it seems to have done. Stukeley mentions that he saw many fragments of altars and inscriptions at the Hall (Brougham Hall), and in the wall by the Roman road beyond the castle and near the Countess's Pillar a pretty "buste," part of a funeral monument, and further on another bas-relievo much defaced, so that in his time perhaps there were some monuments which are now lost; but Chancellor Ferguson in his *History of Westmorland* says it "has not yielded many inscribed stones, and those not of any great importance. A couple of altars to the local deity Belatucador and four or five fragments of tombstones." A portion of an inscription remains on a slab in the ceiling of a doorway passage leading to the second floor of the keep; the only word I could read for certain was Titus.

Without doubt the same reason which induced the Romans to place their camp at this place, namely, the guarding of the ford, caused the Normans to select it as a site for one of their castles, for in all probability they continued

to use the Roman road as their highway; and it was not until much later that this ford was given up, or lost its importance, when the road was diverted to the bridges which were built over the Lowther and Eamont. But even then the castle would be a great protection, as the road had to pass close to its southern wall. The Eamont bridge is a fifteenth-century one, but that may be a re-building, or may point to the time when the Roman road was abandoned. The present Lowther bridge is modern, built about 1870 I think. Hutchinson's map

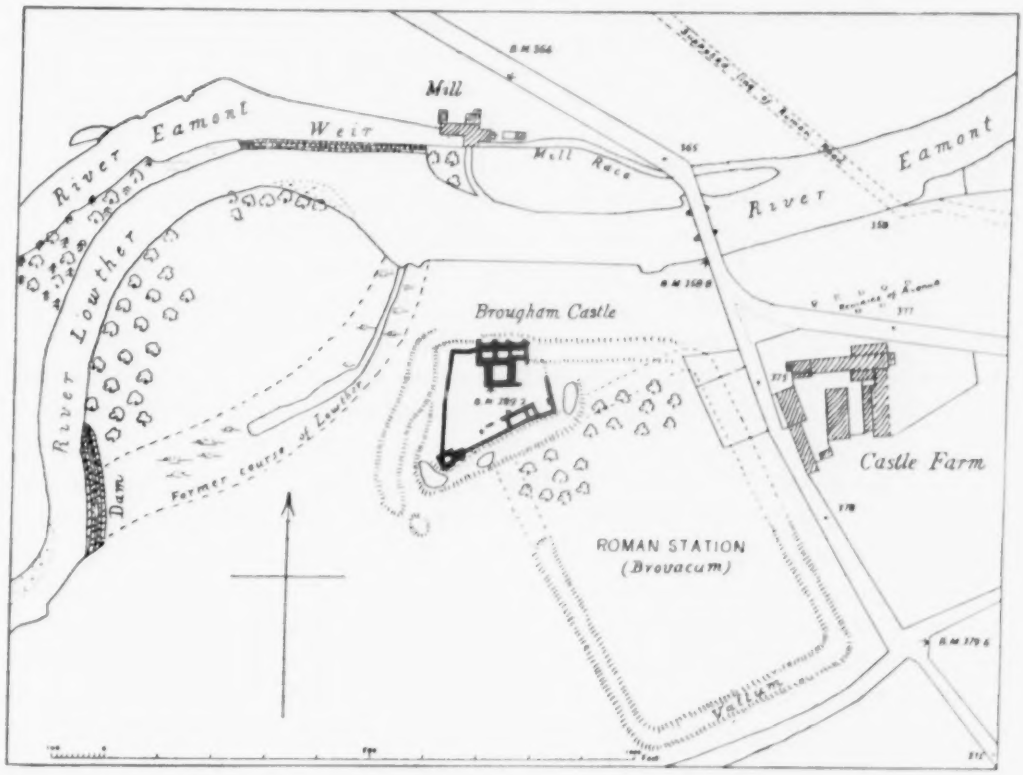


Fig. 1. Brougham Castle. Plan of the Site. From the Ordnance Survey.

of this district shows this route as the main road from York to Carlisle; this was as late as 1794. But when it became important to save time in the latter days of coaches a new road to Penrith was made, and a bridge thrown over the Eamont near the castle. This is the road as it now exists, which cuts off a considerable distance and avoids a steep and awkward hill just past Brougham Hall.

The ruins of the present castle are a striking and picturesque object from the bridge over the river by reason of the massive keep and two great gateway towers; and though Brougham is only one of many castles and towers which are thickly scattered about this district, it deserves more than a passing glance on account of its curious arrangements. Unlike any others in the neighbourhood, moreover, I think there have been several errors made in the dates assigned to the various parts of the building. It is situated on the south bank of the Eamont, about 50 yards from the river and about 30 feet above it, at a short distance east of the junction of the Lowther with that river, and its general plan seems to have been governed by the contour of the ground on the north and west sides, and on the south by the line of the Roman vallum, if the camp was of the size suggested by Mr. Clark. The approach has always been much as it is still, and is marked by the remains of an avenue of trees, probably planted by the Countess of Pembroke. This avenue apparently crossed the present road to a point where I think the old road went down the bank to the ford. On the east and south sides it is protected by a deep ditch, which has been about 50 feet wide, but at present varies from 60 feet at the north-east end to 48 feet at the postern tower. This ditch is continued round the west side until it dies out in the flat land below the bank on which the curtain wall is built. At the south-west corner is a second ditch likewise dying out. This clearly is an extra protection to the postern, which is by the tower at this angle. A narrow causeway crosses the main ditch from the postern, but this may be part of the Countess of Pembroke's work. Formerly the Lowther ran nearer the castle on this side than it does now, and the tongue of land between it and the Eamont was marshy.

Of the owners of the site of the castle and lands before the Conquest not much is known. They were Saxons of the name of Broham or Burgham, and a curious fact is that there still lives at or near Penrith a Burgham who claims descent from the Saxon family. The Conqueror granted the whole county of Cumberland and the great barony of Westmorland to Ranulf de Meschines, one of his followers, for services at the battle of Hastings. It then passed to the Morvilles, but in 1170 Henry II. seized upon their estates in consequence, it is said, of the Morvilles being implicated in the murder of Archbishop Thomas, and granted their custody to Gospatrick, son of Orm, but retained the barony for the Crown. King John granted the barony, together with the hereditary sheriffwick of Westmorland, to Robert, son of William and Maud de Veteripont, in 1204. This Maud was a daughter of Hugh de Morville. Another Robert, grandson of King John's friend, was killed fighting against Henry III. He was the last of the

Veteriponts, as he left two daughters only, the elder of whom married Roger de Clifford, from whom descended the long line of Cliffords, who held the castle until 1643, when the male line became extinct, and the Countess of Pembroke, as last surviving child, succeeded. On her death in 1676 all her immense estates passed to her grandson, the Earl of Thanet, and from the last earl they passed to the present holder, Lord Hothfield.

The defences outside the principal entrance are now entirely obliterated, but a few stones along the edge of the roadway on the side next the river seem to indicate that at about 21 yards from the entrance was the outer side of the ditch, over which a drawbridge would be placed. This may have been a separate structure, or, what is more likely, a curtain wall with an archway in it, connected at its southern end with the buildings which have now entirely gone, and returned along the northern face up to a point about 6 feet from the angle of the buttress next the entrance, where two or three more stones suggest that there was another ditch to be crossed before reaching the great gateway, this ditch being spanned by a narrow timber bridge which could easily be removed if necessary. There are no traces of any arrangement for working a drawbridge above the entrance, nor, as far as I could see, any stones below for the pivots to work in. The three holes at some height up above the entrance do not seem to have ever gone through the wall, and the middle one is not in the middle of the entrance arch. Moreover, it could serve no useful purpose for working a drawbridge. None of the holes shows any signs of wear, the edges being quite sharp. I am more inclined to think that they are the holes left for some timber balcony to defend the entrance before the tower was raised to its present height, and when the parapet was intended to be somewhere about the level of the offset; but it may never have been so completed, as by the time they got up there another floor may have been decided upon. It is difficult to assign a date to the ditch, but I am inclined to think it must be of the same age as the Norman keep. At first there was probably only the great keep and staircase entrance protected by the ditch and a wooden fence, with timber buildings for the retainers and stables. In the present curtain walls I did not notice any Norman work, certainly none similar to the keep, but they have been so much altered at various times that it is not an easy matter to assign an age to them. There are no flat pilaster buttresses such as are to be seen in the wall of Middleham Castle in Yorkshire or in parts of Carlisle Castle. The entrance arrangement I have suggested is unusual, but at Helmsley Castle there is something like it, but much further away from the keep.

In describing the existing buildings I shall begin with the outside at the

entrance gateway, and going round the north, west, south, and eastern sides, follow the same course for the inside as far as possible, leaving the keep to the last.

The entrance itself has had a portcullis and a pair of heavy doors with massive bars, the two folds opening inwards. It has a segmental arch outside and a pointed arch within, both with plain chamfers. The portcullis worked in a

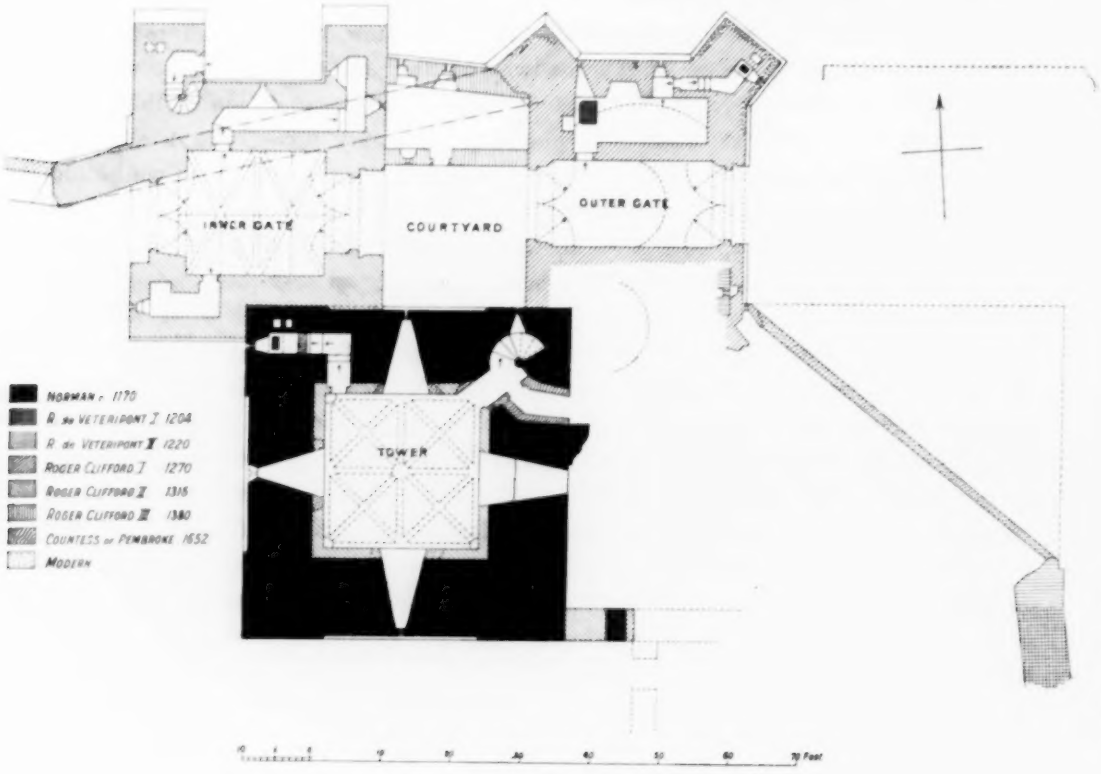


Fig. 2. Brougham Castle. Ground plan of the tower and gatehouses.

groove between the two arches. Above the arch is inserted in recent masonry a stone about 14 inches square with an inscription in raised letters on a sunk panel, "Thys made Roger." This Roger was Roger de Clifford, who lived in the reign of Richard II., 1377-1399. The Countess of Pembroke states that in her time it was placed over the inner gateway, but soon after it disappeared until about 1839, when part of the mill weir was carried away by a flood, and the stone discovered and then placed where it is now by the Earl of Thanet. Neither in its present position nor in that mentioned by the Countess of Pembroke is it a contemporary

record of the building, both gateways being earlier. It may have been put up as a memorial to the builder, who was also a Roger, or it may have formerly been on some other part of the castle. I may here remark that Rogers and Roberts alternate in a bewildering manner for a long time. Hutchinson states that the arms of Vaux "chequy Or, and gules" still remain on the tower,[a] but I cannot find that they had anything to do with the castle; more probably the arms were those of the Cliffords, *checky a fess and a bendlet.*

Some distance above this stone are the three square holes already referred to. Near the ground level the entrance is guarded by two loopholes on the left hand one of which has been curiously altered, apparently by the addition of an outer skin, and on the right hand there was a loophole, which also served to light a garderobe off the porter's room. This now is not visible from the outside, as the angle tower to about 8 feet in height is modern walling on the old foundations; it is only a casing of no great thickness, and the loop is almost perfect inside. On the first floor, and on either side of the entrance, is a fine geometrical traceried window, with central mullion and transom, with cusped heads and quatrefoil in the arch over the mullion. These windows should fix the date of this work at about 1270, making it the work of Roger de Clifford, who married Isabella, the eldest daughter of Robert, the last of the Veteriponts. A little above the arch of these windows is an offset, and nearly over the windows just referred to are two somewhat similar, but of later work, about 1310. One of these windows was quite perfect until recently, when the mullion was allowed to fall out owing to the lack of slight repairs. This of course has caused the ruin of the tracery above. The transom still stands, but will very soon likewise fall, one end being entirely unsupported. Probably this floor was added by Roger de Clifford, a grandson of the first Roger, who built the gateway. He took up arms against Edward II., and was attainted, but afterwards restored.

I may remark that it is a great pity some slight care is not taken of this interesting building, as it is every year getting worse and worse, partly owing to decay and partly to wanton destruction.

Over the entrance at the top are three, formerly four I think, heavy corbels to protect the door below. In the extreme left-hand corner is a drain hole, which has taken the rain water from the gutters and roofs. In the angle buttress high up is another small loop, lighting a privy. With the exception of these two

[a] W. Hutchinson, *An Excursion to the Lakes in Westmoreland and Cumberland*, etc. (London, 1776), 50.

small places this buttress seems quite solid. The curtain wall on the left has never been higher than about 9 inches above the springing of the lower window heads, as can be seen by the coping, but only a fragment is left. Continuing along the north or river face low down are several small slits; the lowest lights the prison below the porter's room. Above is a larger window with a square head. There is also a small loop, now blocked, which is immediately behind the fireplace, and of which there is no trace inside. Over this floor is a larger square-headed window, probably a later insertion; this window is in the same room as the geometrical windows already mentioned, whilst over that is a Decorated window similar to the other two on this floor. Close to it is a corbelled projection to take the flue of the porter's fireplace, which at this point had to be taken outside the wall so as not to interfere with a passage running through the wall that led to a door, and a staircase on to the leads in the next buttress. This staircase is lit by a small loop, whilst below is another loop lighting a room I could not get into, but is most likely a privy.

In the flat wall next at the ground level is a drain from the ground floor of the added rooms inside. This wall seems to have been either added or rebuilt. Part of the angle turret has been cut away and the bonding is imperfect, whilst it is not bonded at all to the square turret of the second entrance gateway. This turret, the upper part of which is ruined, has one window on the first floor and a small loophole half way between the ground and first floors to guard the postern door in the next turret. Between these two turrets there have been two large Decorated windows, one on the first floor, the other above it. The last turret contains the postern, which has communicated by means of a winding stair with the first-floor room. Above this staircase are two small windows, one above the other, each cut in a single stone, lighting garderobes off the first and second floors. Abutting this second gateway the height of the curtain wall and parapet can be seen, a few of the corbels which ran under the parapet being still left, and next the wall the top stone of the parapet. This wall is 6 feet thick.

Except for foundations and a few courses above, not much of the rest of the curtain remains outside; what is there now is thin and of no great age; but sufficient is left to show that it was faced with large square stones and was most likely of the same age as the keep windows.

Next we come to the south-west tower, in front of which was the double ditch already described. In the curtain close under this tower is a postern with a skew entry. At the angle of the tower next the postern is a corbelled-out privy from the second floor, and above the curtain wall, nearly in the centre of the tower, is

a quarter-circle projection for a staircase which goes up to the top; also from the second floor a doorway leads to a flight of steps down to the parapet walk on the curtain wall. The windows of this tower are mostly square-headed, but some are lancets, and in some cases the lights have been altered at a later date. One angle of this tower is entirely ruined. There seem to have been some large windows in it, by the remains of the jambs. Two sides of this tower are a perfect warren of passages. Each floor has a fireplace.

On the south-east side the wall as now standing is of various ages, much

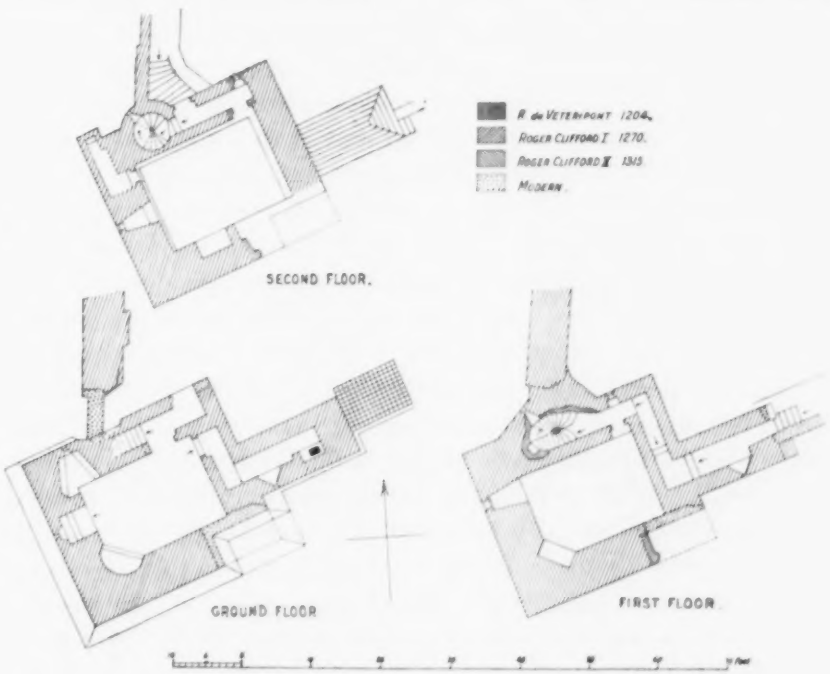


Fig. 3. Brougham Castle. Plans of the postern tower.

patched, but in the main it probably belongs to the time of the keep windows. There are one or two slits and windows blocked up which now show no trace inside. The lower half of the wall is built of large square stones mostly grey; the next portion of rough-faced stone random coursed and much smaller; this extends up to the sills of the chapel windows. Above that it is coursed red sandstone ashlar about 9 inches high each course; this is only along the chapel and a little way beyond on each side; beyond that point above the kitchen fireplace it is of the rough-faced random coursed work. The rest of the walling up to the angle

is mostly of large squared stones with many insertions, and is very difficult to assign a date to. I think it must have been rebuilt, using up old material. The curiously canted south-east corner almost suggests that at one time a tower stood here which has had its two inner walls pulled down altogether, perhaps when the chapel was built.

The chapel has two windows on this side which are perfect; they are plain lancets with trefoiled heads. In the Countess of Pembroke's time, probably, a door was cut through the wall into the small yard east of the chapel. This is now blocked up again; the ditch has also been partly filled up opposite this door so as to make a convenient entry.

On the east side the walling is much the same as on the other side from the south-east angle to the broken buttress, and here is the only external wall string in the whole building. It has been moulded, but is so much weathered that the moulding cannot be made out. Beyond the buttress going north at a considerable height up are three, formerly four, very narrow slits which have been carefully blocked up, and of which there is no trace inside,[a] and about the same level two two-light windows with trefoil heads under a square head have been inserted, most likely the work of Roger de Clifford, who died in 1391 and is said to have been a great builder who built the greater part of the castle "next the east." But he evidently only altered existing buildings and added to the height of the walls, perhaps remodelling the castle inside. The next bit of wall is of a different style, and is not bonded to the other; also it is at a different angle. At one point, just where the modern wall abuts it, there are the remains of a window jamb with a single well-carved dog-tooth on it of the usual thirteenth-century type. It is the only one I have noticed in the building. Perhaps an early chapel stood here having some communication with the early hall. Beyond this point the canted wall to the entrance gateway is modern, and it is quite uncertain what the plan may have been. The existing remains on the gateway tower show that the wall at that point was never higher than the springing of the first-floor windows, and seems to have been roofed over its entire thickness; also it appears to have gone at right angles to the line of the entrance gateway.

Inside, after passing through the entrance doorway, there is a plain barrel-vaulted passage, the walls of rough random coursed work, the vault of ashlar in rather large stones. On the right is the porter's room, a fairly comfortable one, with a fireplace and a passage in the wall leading to a garderobe in the angle

[a] This may have been a hall built by Robert de Veteripont when he obtained the castle.

turret next the entrance. The room is vaulted with a barrel vault longitudinally. Below is the prison with a pointed vault going the opposite way, and it has a small window high up. When I made my first plan in 1870 the entry was fairly perfect, but it has since got much broken away and the place half filled up with stones. It was a hole in the floor of the warder's room without any stairs down, and was covered by either a stone or wooden door.

At the end of the vaulted entrance passage was another pair of doors with bars, etc. opening inwards. Beyond is a small courtyard bounded on the left by the keep and on the right by a long narrow room, over which have been three other floors. None of these rooms has been vaulted. The first and second floors had fireplaces, the second and third floors have been entered from over the warders' room. The entry to the first floor is not now clear, probably access was got to it from the ground floor by means of a wooden staircase; the third floor had an entry also from the second gateway. All these rooms are clearly an addition, the second angle turret of the warders' tower having been partly cut away inside so as to square the rooms, the wall next the courtyard is not bonded, and the outer wall in an imperfect manner next the warders' tower, and not at all next the second gateway. It is difficult now to suggest where the curtain wall originally was, if there was one, as the wall of the wardens' tower has been cut about, whilst that of the second gateway has been an external wall. Beyond the small court just mentioned is a second gateway, also with a portcullis and doorway, the wall being 8 feet 9 inches thick. Over this entrance, but quite in the right-hand corner, is a fine fourteenth-century window, with mullion and transom somewhat similar to the others at the same level. Passing through the gateway there is another passage, with good quadripartite vaulting in two bays, with vault-ribs of a plain chamfer section supported by plain corbels. In this passage on the left-hand side and next the inner courtyard is a porter's room, lit by a small window looking into that courtyard, and roofed with flat stone slabs. Nearly opposite is a doorway, 5 feet from the ground level, leading to a passage in the thickness of the wall, and ending in a small chamber with an arrow slit to guard the postern mentioned in the description of the outside. There is also a small window looking into the first-floor room of the added portion. This window has evidently been intended for an external one. At the end of the vaulted passage there are another pair of doors opening inwards, which have been hung in a pointed arch with a segmental one outside towards the inner courtyard. Beyond this gateway the curtain wall cants inwards for about 10 feet, so as to shelter the doorway from the north.

This system of two entrance gateways close to each other, each having a portcullis and two pairs of doors, both pair in each case opening inwards towards the passage, is curious, and as a system of defence not easy to explain, as it seems that if the outer door were forced all that the enemy had to do was to unbolt the inner one and open it. Further, it does not seem to have been of the nature of a rat-trap, as there is no apparent way by which the besieged could have got round to close the first gates behind them, unless that was in the entirely ruined part where the modern canted wall now is. Another curious thing is that there is no great difference of time between the two gateways, the first being built about 1270 and the other about 1310, or a little later, say 1315.

Continuing round the courtyard there do not seem to have been any buildings of importance between the second gateway and the south-west tower, which was most likely the quarters of the officers and guard. In the curtain under this tower is the postern already mentioned in the description of the exterior. Entering the tower by a doorway near this postern, the room on the ground floor has a large fireplace in the south-west angle, and in the north-east side a long passage ending in a privy. From the entrance passage a flight of stairs leads up to the first floor, which has also an angle fireplace. The staircase is curious, and appears to have been altered at some period. In the thickness of the wall is a long passage ending over the privy in a door leading on to the parapet walk of the south wall. From this floor upwards the staircase is circular, and from the second floor a door led to a flight of steps down to the parapet walk of the curtain wall over the postern. Both this room and that above have had fireplaces. This tower has been a good deal altered at various dates.

For about 50 feet on the south side from this tower there seem to have been no buildings only the curtain wall. The room which came next on this side is now much ruined. It may have been a great chamber. It seems to have been a single room about 45 feet long by 20 feet 6 inches broad. There have been cellars under it, or rather it was on the first floor. It was covered by a ridge roof at a lower level than the chapel, as can be seen by the marks on the west wall of the chapel, but appears to have had another low floor added at a later date with a flatter roof. There are no windows or doors left except one into the chapel, and another in the corner with stairs leading up, and in the centre of the same wall a small square window looking into the chapel. The floor was of wood; one or two heavy stone corbels for carrying the beams are still remaining in the end next the chapel.

The chapel was also on the first floor and supported by beams. The north side

is much ruined, but the south side is almost entire, and contains the two windows mentioned in the outside description, which internally have large splayed jambs, segmental arches over, and a very steep sloping cill, the stones being feather-edged. Above the windows are the stone corbels that carried the roof. Near the east end are three sedilia and a piscina of good design and quite perfect. The fine large stone corbels which carried the floor beams still remain on this side. On the ground floor on the north side at the north-west corner is a thirteenth-century pointed arch doorway leading into the room under the chapel. A little

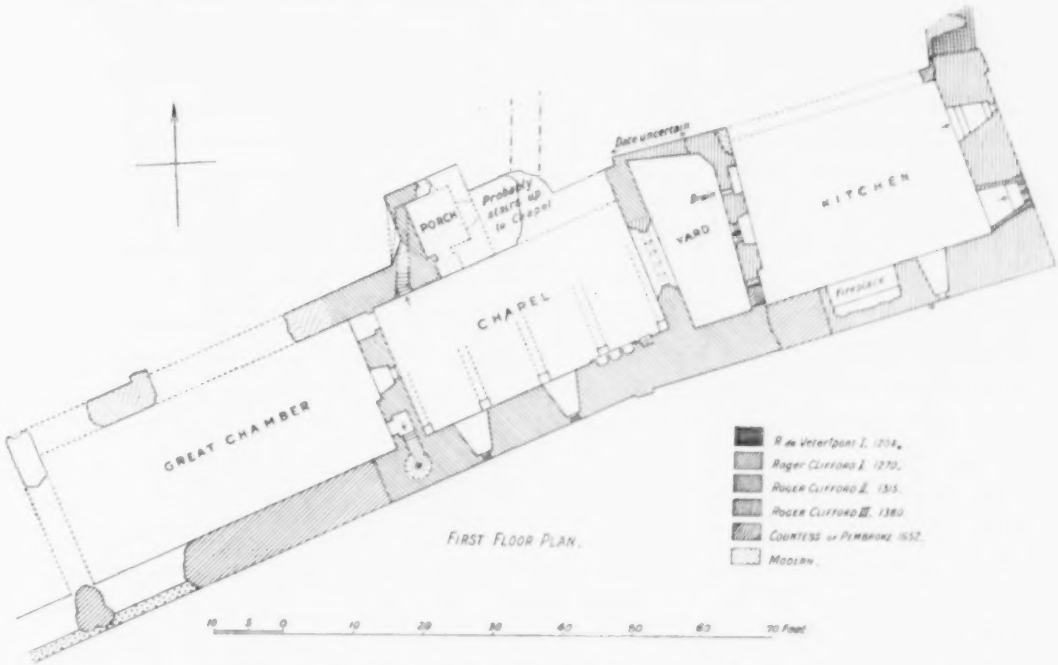


Fig. 4. Brougham Castle. Buildings in courtyard.

way east is a projecting tower with a small chamber on the ground floor with a stone roof. The rest of this side is entirely ruined, but probably contained a staircase from the ground level up to the chapel. On the first-floor level there has been a room in this tower entered from the chapel, perhaps the porch or a vestry, whilst just west of it and nearly over the doorway on the ground floor is a door which has opened into the chapel; this leads to a very steep flight of stairs up to a room over this porch. These stairs are carried on a rather curious canted piece of corbel work outside, but very little of this upper room now remains. It may

have been a priest's room or ringing floor for a bell. At the east end of the chapel there has been a large tracery window of grey stone in a wall of large square red sandstone ashlar; perhaps this window is an insertion in earlier work. It has had two chamfered orders inside and two ogee orders outside with chamfer mullions. The greater ornamentation of the jambs outside is curious, as it looks into a little yard where it could never be seen.

At some time this yard was roofed over below the cill of this window. It is entered from the outside by a door, of which only one jamb stone remains, through a skew passage. From the room which was below what I think was the kitchen a door enters this yard, and a window looks into it, also a curious little skew slit, whilst above that, on the first floor, there has been a door now blocked, a two-light window with a square head, and a sink and drain. Beyond this yard eastwards on the first floor are the remains of a large fireplace and three windows. The northern wall is thin and badly built, taking the place of a much thicker one. All this part has been much altered, and the windows are of different dates. It was made into a kitchen by the Countess of Pembroke, and very likely always was the kitchen. To the north of this kitchen, also on the first floor, has been the principal hall, with cellars under. This is where the blocked loops before mentioned occur. It has been lit by two two-light windows in the external wall, and has had a large fireplace. At the extreme end, in a recess in the wall, is one jamb and half the arch of a small but rather good doorway, the door having opened outward. This doorway is, like the windows, the work of Roger de Clifford between 1364 and 1391. Where it led to cannot now be made out, but close to it at a slightly lower level is the jamb with the early English dog-tooth before referred to. The plan now is very difficult to make out, owing to the heaps of rubbish all over the ground about here, entirely covering all traces of the inner walls. From the door jamb to the entrance gateway the present wall is modern, and most likely not on the ancient lines. Between the point where this wall ends and the top of the wagon vault of the entrance there is another wagon vault at a somewhat lower level covering a chamber to which I could not obtain access, as Lord Hothfield would not give permission for any walling, even modern, to be moved. The rooms above the entrance have been fine and large, one on each floor, with fireplaces on the west wall, and well lit by three windows each, which have been already described. Part of the arch for the portcullis still remains on the first floor, and several holes in the stones of the wall, some perhaps connected with the machinery for raising it, others for blocks to nail panelling or tapestry to. In the north-west corner on the first floor is a doorway communicating with

the second floor of the added rooms, but formerly going to a privy in the angle buttress most likely. On the floor above, the north window jamb has two doorways, that to the east leading to a privy in the angle buttress, and that opposite leads to the third floor of the added rooms, and also to a circular staircase in the angle buttress leading on to the parapet walk. These walls have never been much higher. All the windows except the north one on the second floor have

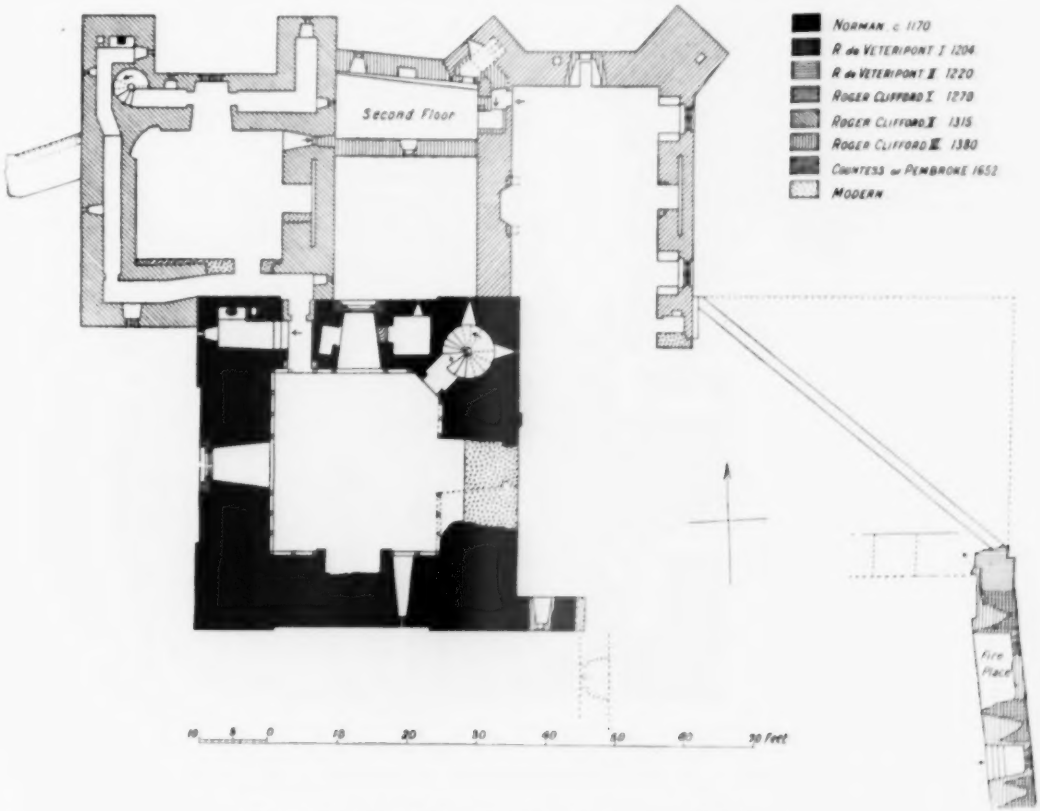

Second Floor
NORMAN c. 1170
R. de VETERIPONT I. 1204
R. de VETERIPONT II. 1220
ROGER CLIFFORD I. 1270
ROGER CLIFFORD II. 1315
ROGER CLIFFORD III. 1380
COUNTESS of PEMBROKE 1652
MODERN
Fire Place
10 5 0 10 20 30 40 50 60 70 Feet

Fig. 5. Brougham Castle. First floor plan of tower and gateways.

stone seats. The floors have been timber. It is now uncertain what length these rooms have been, but most likely they extended to the remains of a wall on the keep, from the staircase of which there was an entry to the second floor, cut skew in a rather curious way, and from other slight wall remains probably there was a screen across on the northern side of this entry.

Formerly access from the second floor of the first gateway could be obtained

to the second floor of the second gateway by crossing the third floor of the added rooms, but this was not an original arrangement. The first floor over the second gateway seems to have had only one window, that facing north, in the jambs of which are doorways. That on the east leads to a passage in the buttress, which has a window looking north, and a loop now looking into the second floor of the added rooms, but this at one time was an external one. The doorway on the west side leads to the circular staircase that ends in the postern at the bottom. This staircase is now ruined. This room has an angle fireplace. The portcullis recess is

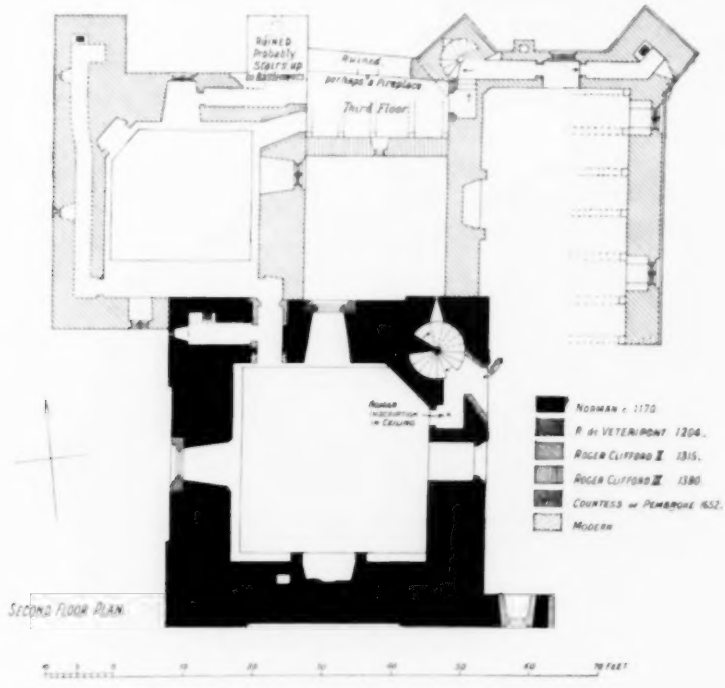


Fig. 6. Brougham Castle. Second floor plan of tower and gateways.

partly perfect. The present entry is modern, but probably on the site of the old. It leads to a passage the whole length of the building, with a doorway leading to the hall of the keep at one end, and at the other a doorway leading to a narrow passage over the inner gateway which ends in a privy in the buttress behind the staircase; on the whole a curious and complicated arrangement. The room above has evidently been much the same, but seems to have been larger, as the floor extended over the southern passage. It also has an angle fireplace and three

windows, two of them being large fourteenth-century ones, one looking into the small courtyard, the other facing north, which had a doorway leading to the eastern turret, with probably a staircase up to the parapet. In the corner a skew entry leads to the third floor of the added rooms; the walls of both this part and the turret are much ruined at this level. On the west side of the room there is probably a passage and privy like the one below. I was not able to get up to this floor, but could see the commencement of the passage beyond the door. This room had a wooden floor.

At first, as I have already said, probably the Norman builder trusted to the great strength of the walls of his keep, surrounded as it would be by the deep moat, with a timber palisade round it, and to the fact that there was no means of access except the doorway, which would be strongly defended. All the windows at that time would be too narrow to afford any means of access, certainly those on the ground floor were so; and if the first-floor ones were larger they were well protected by the stone corbels, with shoots between for throwing down stones, etc. from the parapet level. These are on all four sides of the building, and immediately over the present large windows and doorway. This keep has had four floors, consisting of a ground floor, the first floor or entrance hall, and two floors over the walls, are of great thickness, those on the ground floor being 11 feet. The walling is different from the rest of the castle, being rough random coursed work in small stones, with ashlar quoins and jambs. On three sides it has broad flat pilasters at the corners. The one on the north-east contains the staircase which has gone from the ground floor up to the leads or parapet walk, but has had direct access to it from the ground floor and entrance hall only; both the other floors were entered from the staircase by passages. The north-west pilaster contains the privies, whilst the other angles seem to be solid. Of the original porch but little remains to show the former arrangement. A small portion of the south wall is still standing, most likely to its original height; but it has had late windows inserted, and its height increased at a later date. The entrance to this porch was probably through a door, of which one springer of an arch and part of a hood which has been cut off remains. From this door there must have been a flight of stairs up to the first-floor level, where the original entrance to the keep was; but of these stairs there is now no trace. That this wall is of the same age as the keep is shown by its being similar in style and bonded properly up to the second-floor window level, but above that point it is thinner and not bonded. On the east face of the keep and near the centre there has been a door into the ground floor, of what date cannot be said, but apparently original; there is also a small

skew entry of much more recent date leading to the staircase passage. The windows that lit this floor were very narrow slits with round heads, as were the staircase lights. On the first floor above the doorway first mentioned was the principal entrance. The portion of the arch and hoodmould and abacus that are visible show it to be of transitional Norman time; say *temp.* Henry II., about 1170.

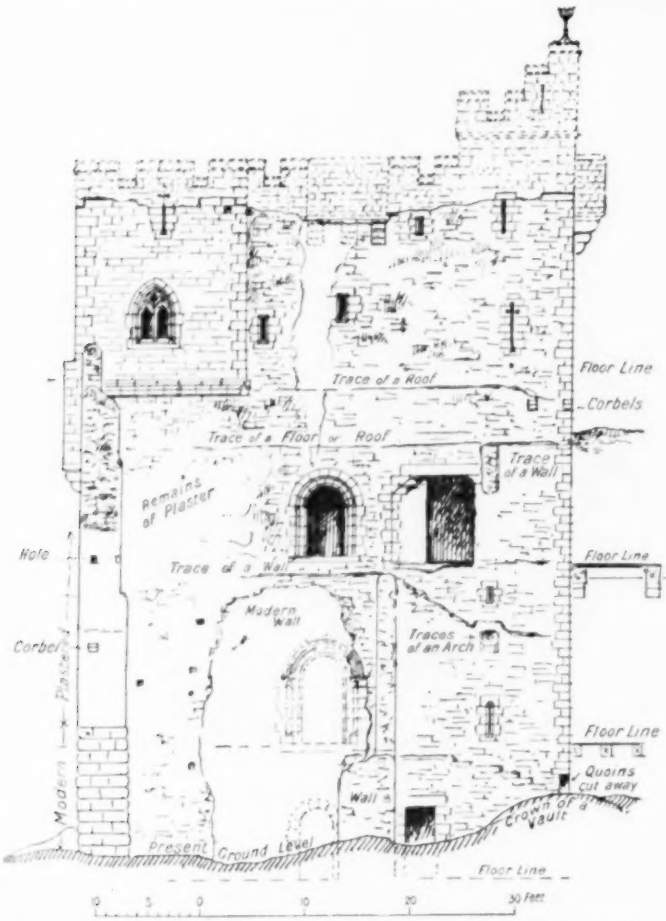


Fig. 7. Brougham Castle. East elevation of keep, with suggested battlements.

at which time I would suggest the keep was built. Here I may state that Mr. Clark calls it "Decorated," and states that the opening on the second floor was the original entrance, but he evidently sees a difficulty in getting down from such a height. The two windows on this floor are early thirteenth century, and large.

I think there is slight evidence that they have been cut in. On the next floor over the entrance is a plain semicircular-headed window or door with two orders with plain splays. I think it led from the second floor on to the leads over the entrance, or possibly to a room, as there is the trace of a roof having been just above it. Near it is the skew opening before referred to. The other windows on this floor are like those below. On the next floor at the south-east angle the wall projects for about 1 foot on a moulded course for some distance both on the east and south sides, with two well-carved grotesque heads under the moulding on the south side where it projects beyond the pilaster, and in this portion of the wall

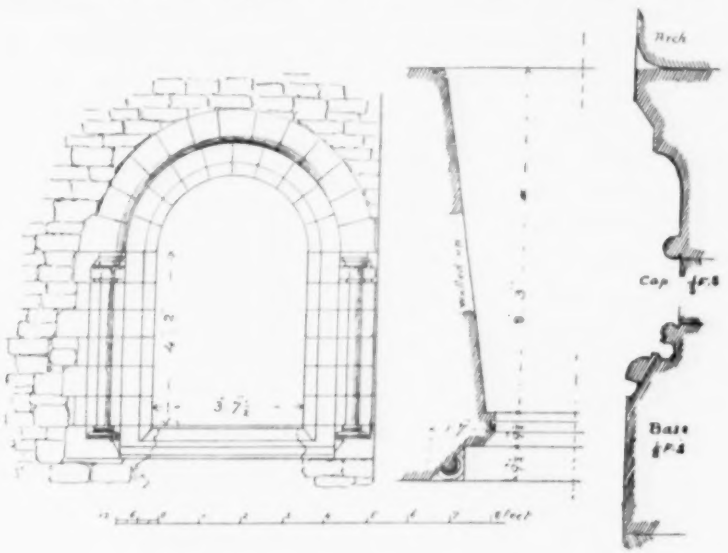


Fig. 8. Brougham Castle. First and second floor windows of keep.

there is a small but good fourteenth-century window as the east window of the oratory.

All the other windows on this floor are small, several being about 1 foot 6 inches square and high up, except that on the north face, which seems to have been a large one, but it is now much ruined. Buck in his drawing dated 1739 shows it as similar to those on the second floor of the gateway. But his drawing is not to be relied upon, though in this instance it is probably correct. At the north-west and south-west angles are long narrow arrow slits of thirteenth-century pattern. Above this floor are the remains of more arrow slits, and on each face three heavy projecting corbels, except on the east, where there is only one, and

now no trace of any others, but I think that originally it had three like the other sides. Above on the north-west corner, some distance in from the angle, a portion of the chimney still stands nearly to its entire height. Mr. Clark says that the turrets and parapet of the keep were standing in 1775, but Grose's drawings do not show much more than there is now, nor does Buck's, dated 1739, except that he makes the chimney an octagon like a turret. It is very difficult to assign a date to the exterior of this floor, but I am inclined to think that in the main the wall is of the same age as the part below, with windows and slits inserted later. There is no trace whatever of any change in walling all the way up. Of course the oratory part is thirteenth century, and there the walling is entirely different, being mostly ashlar work. Some stairs seem to have led from the entrance level down towards the north at one time, as there are faint traces of steps against the keep wall just above the vault over the inaccessible room, and also what looks like traces of a roof slightly sloping from the second-floor window down to a springer still existing over the staircase loop, above which is a small slit lighting a now blocked little recess off the staircase halfway up between the first and second floors. These stairs may have led to the curtain wall before the first gateway was built.

The keep is now entered through the ruined slit in the ground floor on the west face. This floor has had an added vault consisting of four quadripartite vaults resting on a central column. Three of the springers remain. It was probably added when the second gateway was built. Its weakness consisted in the fact that the four principal arches rested on the arches of the door and windows, as that is the only way I can see that it can have been done.

I may here quote Grose's description, which he takes from Hutchison's *An Excursion to the Lakes*, published shortly before he wrote his book. "The lower apartment in the principal tower is still remaining entire; being covered with a vaulted roof of stone, consisting of eight arches, which, as they spring from the side walls, are supported and terminate on a pillar in the centre." Access to this floor was obtained from the staircase and the narrow skew passage before mentioned, and a doorway in the middle of the east face. In the north-west corner is a blocked-up passage, but no doubt it led to a privy similar to those over.

The next floor was the entrance hall. It has been a fine room, with a large fireplace on the south side, and two large window. In that on the north side, on the west side of the jamb, is a cupboard, and on the other a blocked-up doorway to a small square chamber lit by a small Norman window. I could not get into this room, but it seems to have been plastered. The entry apparently was blocked up

by the Countess of Pembroke. What was the object of this little room, without getting in, is difficult to say. It may have been a well chamber, as there is no trace of any water supply anywhere in the keep. Of course there may be a well in the ground-floor room, now hidden by the heaps of rubbish all over the floor. The walls on this floor are 10 feet thick. The staircase has been entered by a door in a canted angle which runs the whole height of the keep. At the floor-level of the room are the remains of an arcade with attached shafts, about 4 feet high, with caps and bases and semicircular, or almost semicircular, moulded arches. This of course is also added work of the date of the vaulting below; I think that is about 1310. In the north-west corner is a doorway leading to a passage to the first floor over the second gateway; this has been cut through the Norman wall. The door originally led only to a privy, which still exists in that angle. The second floor also had a large fireplace in the south side, with two windows similar to those below, and on the east side the plain round-headed window or door over the hall door below. This room was not entered direct off the staircase, but by a short right-angled passage, in the ceiling of which a slab with a portion of a Roman inscription is built in. In the north-west corner is a passage and probably a privy similar to that below, but I could not get up to it. This wall is from 8 feet to 9 feet thick. On the staircase, halfway between the first floor and this one, is a small chamber with a slit looking east; access to it is now blocked up, but not recently.

The third and top floor room has all its angles canted; in the north-west one is a fireplace with about an 8 feet 6 inch opening. It has a flat arch, composed of thirteen joggle-jointed stones, and is quite perfect. In the opposite angle is an entry to the oratory. The cants on three sides are carried by moulded courses dying out in the angle; these were visible in the room below. There is also a moulded course all round the room on which the floor joists rested. Round three sides of the room is a passage in the thickness of the wall; whilst on the fourth, that is the east side, there is a passage from the stairs leading to a door, and also a small vestry off the oratory. From the staircase (the upper 6 feet of which is now ruined) the passage going round the keep is about 4 feet below that leading to

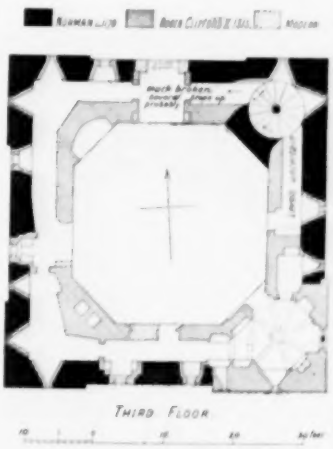


Fig. 9. Brougham Castle.
Plan of the keep or tower. Third floor.

the door. Just about the large north window, which may have been a late insertion, the floor of the passage is a good deal broken up, so that the levels are uncertain, but were probably the same level as the floor of the room and approached from the staircase by several steps, beyond that point it is fairly perfect. In this passage have been several doorways, and the various small windows and arrow slits before mentioned. The openings in the inner wall do not seem to have been large, therefore this room must have been somewhat dark, unless it was lit by any arrangement of dormers in the roof. Having traversed round the three sides of the keep we arrive at a very quaint little oratory, with a moulded arcade, with stone seats at the entry. The oratory itself is an irregular octagon, with an east window over the altar, or rather where the altar was. On the south side there is a recess with a piscina, and on the north an ambry; whilst next to this is the door to the vestry. The vaulting of the roof is very curious, as also the roofing of corbels and slabs over the arcaded part. The mouldings of the doorway from the room are somewhat elaborate, whilst still more so is the jamb and half arch that is left about the middle of the south side. This may have been an open arcade of three arches originally, or only two, one on each side of the chimney flues, which may have gone straight up and not been canted into the angle as I have suggested in my plan. The staircase continued up to the battlements, but now all the steps are broken. All this top floor has been much altered internally when the oratory was constructed probably by Roger de Clifford about 1315; and I think that whilst the outer wall is Norman, except the windows, the whole of the interior is of the later date. Possibly there always was a passage round in the thickness of the wall; if so it would be an easy thing to remodel the inside. The oratory locally is called "The Marble Chapel," why, I do not know, as there is no marble in it. It is also rather curious that the Countess of Pembroke in her diary omits to mention this oratory in her account of the castle. Perhaps being a strict Protestant she did not consider such a place a fit adjunct to her home, and therefore ignored it. She mentions "The Tower of Leaguer," which I think must be the keep, "The Greystoke State Chamber," perhaps that over the entrance gateway, and "The Painted Room," which may have been over the second entrance. She also mentions "The Pagan Tower," but by that I think she means the remains of the Roman camp, as there is no reason why the keep should have that name.

Mr. Clark says about the castle: "The keep, judging from internal evidence, and probably the ditches were the work of Robert de Vipont, very early in the thirteenth century. In the Decorated period the castle underwent great altera-

tions. The keep was probably raised a story, and an oratory included in the new work. The basement was vaulted, the first floor arcaded, and the fore-

Fig. 10. Brougham Castle. The oratory in the keep.

building so altered as to admit of an entrance on that floor. All the rest of the castle, gatehouses, domestic buildings, and the whole of the *enceinte* wall belong

to one general period, and are probably the work of Roger de Clifford, the first of his race, who held this property, and the husband of Isabel de Vipont, its heiress, in the reign of Edward I." A good deal of this statement is open to doubt, as I have endeavoured to show, and some of it is undoubtedly erroneous. So far from the castle being of two periods only, it seems to me that from the time it was built until it was finally dismantled by the Earl of Thanet, the grandson of the Countess of Pembroke, almost every owner did something either to strengthen or improve it.

XV.—*Garnier de Nablous, Prior of the Hospital in England, and Grand Master of the Order of St. John of Jerusalem.* *By* J. H. Round, *Esq.*, *M.A.*

Read 29th January, 1903.

It is by the kind permission of the Dean and Chapter of St. Paul's that I exhibit the charter on the table.[a] This document is a grant, by the Prior of the Hospital of St. John in Jerusalem in England and the Chapter, of the church of Broxbourne, Herts, to the Bishop of London for a yearly payment of four marcs.[b]

The charter is sealed, and it bears the date of 1190, a date which, as I shall explain, is of some historical consequence. Although calendared so far back as 1883 by my friend Sir Henry Maxwell Lyte in his valuable report on the muniments at St. Paul's,[c] the charter seems to have been overlooked, for it was not found in that great repertory of all the charters of the Order,[d] published by M. Delaville Le Roulx, although he endeavoured to include all those that are in England.

The "capitular seal and counter-seal," as they are styled in the report of Sir Henry Maxwell Lyte, prove to be the Prior's seal with Garnier's *secretum* on the reverse. Impressions of the same interesting seal are appendant to a charter of Garnier (1189) in the Public Record Office.[e]

Garner[ius] de Neapoli, by whom this grant was made, is alleged to have

[a] *Muniments of the Dean and Chapter*, A. 28, No. 291.

[b] Broxbourne with its church had descended from the house of Grantmesnil with its heiress to her husband, the Earl of Leicester, and they had united in giving it to the brethren of the Hospital shortly before.

[c] Ninth Report Historical MSS. App. I. p. 3.

[d] *Cartulaire général de l'Ordre*, etc. vol. i. I called attention to its omission at the time, and it is now, I hear, inserted in a supplemental volume. Newcourt gave the text of the charter from the Register, Lib. A, which omits several witnesses (*Repertorium*, i. 809).

[e] Ancient Deed, A. 6708).

been the first Prior of the Order of the Hospital in England, and his subsequent history is plunged in confusion. Dr. Stubbs, in a learned note on him, has observed that "the received chronology of the Masters" of this Order "is in great disorder," and that the date of Garnier's accession to the office is a point "of some importance."[a] But if the succession of the Masters was obscure, that of the Priors of England is in even worse disorder.[b] Yet I hope to show that this confusion, so far as Garnier is concerned, can now at last be dispelled.

Only a few months ago there was published *A History of the English Hospitallers*, of which the authors are respectively styled "Genealogist" and "Librarian" of the Order. In this work I read of the Priors that "the list of these dignitaries commences with a Neapolitan" (p. 50). Now Garnier was not a Neapolitan, and the list does not commence with him. The rest of the statement may be accurate. It is true that "Neapolis" might stand for Naples, and that in Sir Henry's report he is styled "Garnier of Naples," but he derived his name, as Dr. Stubbs was aware, from what is now Nablûs, the Shechem of the Old Testament, the Sychar of the New, to which the Emperor Vespasian gave the name of Neapolis.[c] Nablûs was an important town in the kingdom of Jerusalem, and had its own line of *vicomtes*, who probably derived from it a surname like some of our sheriffs in England. Of this house, I imagine, Garnier was a cadet.

The accepted list of the Priors of England, as given in the *Monasticon*, places Garnier at their head, and dates him as occurring "before 1162." In a paper I had the honour of reading before the Society in 1898, I showed that the foundation of Clerkenwell Priory, the first house of the Order in England, has been dated much too early;[d] and so it was with Garnier. Instead of appearing "before 1162," he first appears in April, 1185, when he is found at Dover with the patriarch Heraclius and Roger de Moulins, Master of the Order, arranging with the Bishop of Winchester, in the presence of Henry the Second, the transfer of the Hospital at St. Cross at Winchester from

[a] *Itinerarium Peregrinorum et Gesta Regis Ricardi*, p. 372, in vol. i. of *Chronicles and Memorials of the reign of Richard I.*, edited by William Stubbs, M.A. London, 1864 (Rolls Series 38).

[b] It is based on a list found at the end of Cott. MS. Nero E. vi. the MS. from which was also derived the error as to the foundation of the Clerkenwell Priory.

[c] Mr. Robert Gladstone, junior, has kindly sent me confirmation of this statement from Vicomte de Villeneuve-Bargemont's *Monumens des Grands Maîtres* (1829), where we read that he is called "Garnerius Sirianus" on his funeral monument (vol. i. p. xi. and plate facing p. 47). Mr. Gladstone has made, I find, large collections for a history of the early Priors.

[d] *Archaeologia*, lvi. 223-8.

the Order, which had hitherto held it, to the bishop. The original agreement,[a] in perfect preservation, is now at the British Museum, and appendant to it are the seals of the Bishop, of the Master, and of the Prior, Garnier himself attesting as Prior of the brethren in England, and being immediately followed, I would ask you to observe, by "Ego Alanus, frater Hospitalis, presbyter, interfui." In the charters granted by Garnier as Prior of England, I find this Alan occurring as the first witness sometimes as "fratre Alano" and sometimes as "fratre Alano de Sancta Cruce." The origin of his name is explained by the charter on the table, in which he similarly figures as first witness, but styles himself "custos" of the house "Sancte Crucis extra Wint[oniam]." We may add his name therefore to those of the Masters of the venerable hospital of St. Cross. It was he, we shall find, who succeeded Garnier as Prior of England.

Returning to Garnier, there have lately come to light two of his charters at the Public Record Office,[a] one of which is dated the morrow of St. Hilary (14th January), 1190. Another charter of his, as Prior in 1190, was exhibited before your Society thirty years ago.[b] But what I found in the archives at Rouen was a document which proves that he was already Master of the Order in December of that year,[c] when we find him at Messina with Richard. Accompanying Richard from Sicily to Cyprus, he attested the settlement of Berengaria's dowry, 12th May, at Limasol;[d] he successfully brought about the interview between Richard and the Emperor;[e] and it was to him that Richard, in June, entrusted the Emperor as a captive.[f] Therefore, as Dr. Stubbs observed, he could not have died, as alleged by the historians of the Order, in 1187, of wounds received at the battle of Hittin.[g]

[a] *Ancient Deeds*, A. 6708, 8990.

[b] 13th February, 1873 (*Proceedings*, 2nd Series, v. 447).

[c] *Calendar of Documents preserved in France*, p. 15 (Charter of 6th December, 1190).

[d] See Dr. Stubbs' note to the *Itinerarium* quoted below.

[e] "Mediante vero et plurimum satagente magistro Hospitalis Jerusalem, statutum est colloquium inter regem et imperatorem." (*Itinerarium*, 196-7).

[f] "Rex imperatorem commisit Warnero de Naplis summo magistro Hospitalis ad custodiendum." (*R. de Hoveden*, ii. 173. Compare *Benedictus*, ii. 657.) The Hospitallers kept him at their Syrian fortress of Merkeb or Margat.

[g] The *History of the English Hospitallers* (1902), already spoken of, accepts his death at that date, and suggests that the Prior of England must have been a brother of his! See p. 185: "Garnier de Neapolis is the first recorded Prior of England. He could not have been the Garnier de Neapolis, afterwards Grand Master, who died of wounds received at the Battle of Tiberias, A.D. 1187 . . . . . He was in all probability a brother of the Grand Master."

But what baffled that great historian was that at the battle of Arsûf (7th September, 1191), three months after the last mention of him in Cyprus, he is spoken of in the *Itinerarium* (p. 267) as a different person from the Master. Dr. Stubbs was the less able to explain this because Garnier appears again as Master of the Order in June, 1192. He therefore left the problem unsolved, as will be seen from this passage:

> Garnier of Naplous is said by the historians of the order to have succeeded Roger de Moulins, the Master of the Hospital who fell at the battle of Nazareth [1st May, 1187], and to have died at Ascalon, July 6, 1187, of wounds received at the battle of Hittin. The authors of *L'Art de Vérifier les Dates* were aware that he was alive in Feb. 1191; but place the whole Mastership of Hermenger Daps and the beginning of that of Godfrey de Duisson between that date and the battle of Arsûf [7th September, 1191]. From Benedict of Peterborough (vol. ii. p. 657) and Bromton (c. 1203) we find that Garnier was Master in June, 1191. As Master of the Hospital he attested Richard's settlement of Berengaria's dowry, May 12, 1191, at Limasol; see Martene and Durand, *Amplissima Collectio*, i. 995; and we find from this passage [*Itinerarium*, p. 372] that he retained the office in June, 1192. Yet in our author's account of the battle of Arsûf, Garnier of Naplous is spoken of as a different person from the Master; see above, Lib. iv. c. 19. There can be no doubt that the received chronology of the Masters is in great disorder, and unfortunately the inconsistency of our author in this point does not serve to settle it. The Mastership of Hermenger Daps is certainly misplaced, for he writes as Master, to Leopold of Austria, in October, 1188. See Ansbert, ed. Dobrowsky, Prague, 1827, p. 5. The point is one of some importance.[a]

The explanation of this discrepancy is one of the curiosities of historical research. The *Itinerarium*, which baffled Dr. Stubbs, was elaborately shown by him, as its editor, not to be, as a manuscript alleged, a translation of a French original. But subsequently M. Gaston Paris, the distinguished French scholar, actually discovered in the archives of the Vatican the lost French poem of which our *Itinerarium* is, in the main, a mere translation.[b] And he was able to show that the Latin translator had misunderstood the passage about the battle of Arsûf, and that Garnier and the Master of the Order were one and the same person:

> La traducteur latin, ayant mal compris le premier passage où figure Garnier, l'a distingué à cet endroit (p. 267) du maître des Hospitaliers;[c] cette erreur a embarassé

[a] *Itinerarium Ricardi*, 372, note.

[b] *L'estoire de La Guerre Sainte* (Documents inédits), 1897.

[c] I here give side by side the versions of the passage in question in (1) the French poem, (2) the Latin version of it in the *Itinerarium Ricardi*. It will be observed that the misunder-

M. Stubbs, qui, dans une note érudite (p. 372) a essayé de reconstituer les dates de la maîtrise de Garnier de Naplouse. Le texte français fait disparaître le difficulté qui l'arrêtait; il nous montre Garnier maître en 1191 comme en 1192. D'après M. Stubbs, Garnier était d'origine anglaise;[a] il n'était pas maître avant 1189, et on ne sait quand il mourut. Garnier mourut probablement le 31 Août, 1192; voir Herquet, *Die Grossmeister des Hospitalordens während dei Kreuzzüge* (Berlin, 1880), pp. 26-35.

He is last mentioned in the poem 3rd July, 1192, when as

> Li meistre des Hospitaliers
> Garniers, li curteis chevaliers

he severely rebuked Robert de Bruges for breaking the rules, as a knight of the Order, by charging on his own account apart from his brethren.[b]

All discrepancy thus disappears, and we are now able to assert that Garnier was Prior of the Order in England from 1185 to 1190, that in 1190 he became Master of the whole Order and accompanied Richard on Crusade, where the splendid achievement of his knights aroused the King's admiration.[c] Last men-

standing arose through a detail of punctuation (the stop after "Guarniers"), and the rhetorical amplification in the Latin should also be noted. It was similarly, by misunderstanding William of Malmesbury, that Wace (*Roman de Rou*), as I have shown (*Feudal England*, 414), evolved from the former's description of the shield-wall at the battle of Hastings the long and confused passage which has been held to describe a "palisade" of some kind.

Plus de vint miliers en poi d'ore	Tandem turbatim irruunt subito Turcorum
Sor l'Ospital erent a forge,	plus quam viginti millia; cominus clavis mal-
Quant li uns d'els clama "Saint Jeorge,	leantes, et gladiis; in Hospitalarios congemi-
Lairez vos nos issi confondre?"	nant ictus, contundunt, affligunt, et variis urgent
. . . . .	conatibus; cum, ecce! propemodum pene victus
C'ert de Napes freres Guarniers,	immanitate, unus eorum, frater Garnerius de
Li mestre des Hospitaliers.	Napes nomine, exclamavit voce magna dicens,
Cil vint al roi, poignant en haste	"Sancte Georgi, miles egregie, numquid nos sic
Si li dist. "Sire, l'en nos haste."	confundendos relinquis?"
. . . . .	. . . . .
	Ad hæc Magister Hospitalis, regem adiens, ait
	illi; "Domine rex, vehementer infestamur" . . . .

[a] This is not quite correct. Dr. Stubbs spoke merely of "The connection of Garnier with the English nation," *i.e.* as Prior of England.

[b] Compare the version in the *Itinerarium*, p. 372, where Dr. Stubbs assigns the incident, more correctly it would seem, to 12th June.

[c] See his charter of 5th January, 1194, in *Calendar of Documents preserved in France*, 469.

tioned in June, 1192, he is said in a German monograph on the Masters of the Order to have probably died at the end of August in that year.

Garnier's successor as Prior of England was Alan "de Sancta Cruce," who derived his name, as I have shown, from the Hospital of St. Cross, Winchester. It would seem that at the Michaelmas chapter of the brethren in 1190 Alan had not yet formally succeeded as Prior. He grants, in that chapter, a lease of land at Arundel as "ego frater Alanus *preceptor*," and Mr. Robert Gladstone has called my attention to the fact that he was then still using the seal of Prior Garnier. It is a singular circumstance that the British Museum has another charter of his,[a] which, although distinctly dated 1199, must belong to the same occasion. And in this charter also he is only styled "Preceptor."[b] The date "1199" is accepted as correct in the British Museum *Catalogue of Seals* (i. 855), where a footnote observes that "Bishop Alan died 19th May, A.D. 1196 (*Ann. Teuk.*), a date hard to reconcile with the seal and charter Cott. ch. vii. 5, unless there were two successive Priors of the name."

When the difficulty caused by the wrong date in this charter is removed, there is nothing to prevent our accepting the fact that brother Alan, the prior, was made bishop of Bangor in 1195, being consecrated on 16th May.[c] A charter of 1193, in which he styles himself "ego Frater Alanus Prior fratrum Hospitalis Jer' in Anglia," was exhibited before the Society in 1873.[d]

[a] *Cott. Chart.* vii. 5.

[b] Both charters are dated in the Michaelmas chapter in London, and both, as Mr. Gladstone has pointed out to me, are sealed with the seal of Prior Garnier. He had independently arrived at the conclusion that this charter must belong to 1190, in spite of the words "nonagesimo nono" being quite plain, on the ground that Gilbert de Ver had himself become Prior before 1199, in fact, *circa* 1196-7. My own ground for suspecting the date to be 1190 was that the names of the witnessing brethren are similar to those found in the charters of 1189-1190 (see Appendix of charters). Here are the names of those in Alan's two charters:

Add. MS. 7208 (1190).	Cott. Chart. vii. 5 ("1199").
"frater Alanus preceptor . . . . . fratre Matheo, fratre Willelmo, fratre Philippo, presbiteris; fratre Gilleberto de Ver; fratre Roberto filio Ricardi; fratre Radulfo de Palermo; fratre Samsone; Waltero clerico."	"frater Alanus preceptor . . . . . fratre Matheo; fratre Michaele; fratre Roberto parvo; fratre Reginaldo; fratre Gilleberto de Ver; fratre Roberto filio Ricardi; fratre Illeberto de Wilton; Waltero clerico."

[c] Mr. Gladstone has collected several passages from the chronicles recording the fact. The bishop, who died about a year later, is usually entered as "Alban" in the lists.

[d] *Proceedings*, 2nd S. v. 448.

I now append the names of the witnesses to some charters of Prior Garnier in 1189-1190, for comparison with those in the St Paul's charter, which are given at the close. They supply us with the names of leading members of the famous Order in England on the eve of the third Crusade.

[1189]

(1.)

Charter relating to Swarling Chapel in Petham Parish, Kent.

(Add. MS. 4527.)

Testibus: fratre Alano; fratre Matheo; Roberto de Lindes' preceptore Cantie; fratre Roberto filio Ricardi; fratre Hugone de Clahull; fratre Ilberto de Wilton; fratre Henrico Noel; Waltero clerico . . . . . MCLXXXIX. apud London.[a]

(2.)

Lease of Two Bovates at Linacre, co. Lancs.

(Add. Chart. 13,932.)

Hiis testibus: fratre Alano de Sancta Cruce; fratre Matheo; fratre Roberto Parvo; fratre Osberto de Nordfolcia; fratre S[a]lom[one]; fratre Briano de Lond[oñ]; fratre Hugone de Buiford; fratre Nicholao de Cadmel tunc magistro Eboraci; fratre Simone de Scoth[ia]; Waltero clerico . . . . . MCLXXXIX.[b]

(3.)

Grant of a Virgate at Mapowder, co. Dorset.

(Ancient Deed, A. 6708.)

fratre Alano de Sancta Cruce; fratre Matheo; fratre Roberto Parvo; fratre Osberto de Nordfolcia; fratre Salomone; fratre Briano de London; fratre Hugone de Buiford; fratre Nicholao de Cardmel tunc magistro Eboraci; fratre Simone de Scothia; Waltero clerico.[c]

(4.)

Grant of Half a Hide in [Temple] Grafton.

(Add. Chart. 21867.)

Hiis testibus: fratre Alano de Sancta Cruce; fratre Matheo; fratre Reimbaldo; fratre Philippo capellano; fratre Reinaldo de Wirec[estria]; fratre Roberto filio Ricardi; fratre Illeberto de Wilton; fratre Hugone de Buiford; Waltero clerico. 1189.

[a] *Cartulaire générale*, i. 552.

[b] *Cartulaire générale*, i. 552-3.

[c] The exact correspondence of the names in this and the preceding charter should be observed.

[1190.]

(5.)

GRANT OF LANDS AT BICKERSTAFF, CO. LANCS.

(Chetham Soc. Pub. xlvii. App. 190.)

fratre Alano; fratre Willelmo capellano; fratre Gilberto de Ver; fratre Roberto filio Ricardi; fratre Ilberto de Wilton; fratre Henrico de Dalbi; fratre Nicholao de Cardmel; fratre Willelmo de Yp[ra]; fratre Gilberto; fratre Ysaac; fratre Samsone; Waltero clerico. Anno Incarnationis Millesimo centesimo nonagesimo.[a]

(6.)

GRANT OF LAND TO THURSTAN DE BAKECHILD.

Hiis testibus: fratre Alano; fratre Matheo; fratre Willelmo capellano; fratre Gilleberto de Ver; fratre Roberto filio Ricardi; fratre Hugone de Clahulle; fratre Rogero de Waver'; fratre Ilberto de Wiltone; fratre Henrico de Dalbi; fratre Samuele; fratre Roberto de Leic'; fratre Briano de London; fratre Samsone; Waltero clerico. Anno Incarnationis domini M°C°XC°.[b]

(7.)

GRANT OF BROXBOURNE CHURCH.

(St. Paul's, A. 28, No. 291.)

Hiis testibus: fratre Alano cu [stode de domus][c] . . . . . Sancte Crucis extra Wintoniam; fratre Matheo; fratre Willelmo capellano de Lond'; fratre Roberto Parvo; fratre Gilberto [de[c] Ve]r; fratre Roberto filio Ricardi; fratre [Hu[c]]gone de Clahull; fratre Gaufr [ido de Waver'][c] . . . . . fratre Ilberto de Wilton; fratre Rogero de Waver'; fratre Roberto de Leic'; fratre Briano; fratre Samsone; Waltero de Hereford clerico nostro. Anno ab incarnatione domini M°C°XC°.

[a] I am indebted to Mr. Gladstone for the reference to this charter.

[b] *Proceedings*, 2nd S. v. 446-7.

[c] Document damaged. The chief gaps are supplied from the transcript in Cott. MS. Nero E. VI. f. 139.

XVI.—*Excavations at Caerwent, Monmouthshire, on the Site of the Romano-British City of Venta Silurum, in* 1902. *By* Thomas Ashby, *Jun., Esq., M.A., F.S.A.,* Alfred E. Hudd, *Esq., F.S.A., and* A. Trice Martin, *Esq., M.A., F.S.A.*

Read 19th March, 1903.

The excavations which were made in June and July of 1902 were included in the report of the work done in 1901.[a]

The excavations, of which the results are now to be reported, did not begin until 11th August and were continued until October. The greater part of House No. 4 had, however, been excavated in 1900, but our description of it was postponed until the whole should have been brought to light.

House No. 4 is divided from House No. 2 by a street paved with gravel 19 feet to 20 feet in width, which cannot be clearly traced between Houses Nos. 3 and 5, where the intervening space is much wider.

On the north side of Houses Nos. 4, 6, and 9 runs a street which is the prolongation of that which skirts the north wall of House No. 2 and divides it from House No. 7. This street is from 22 feet to 25 feet in width, and is pitched with large cobblestones, underlaid by a hard gravel bed, giving a total thickness of 1 foot 9 inches. It passes about 50 feet south of the church, measuring from the exterior of the old south aisle (or 60 feet from the chancel wall),[b] and would fall into the road leading to the south gate just at the point where the 25-inch

[a] See *ante*, pp. 119-152.

[b] Walls have been found in the churchyard which continue its direction.

Ordnance Map marks "Site of Cross."[a] A stone which is still preserved in the garden of Great House is possibly a portion of this cross.

The orientation of Houses Nos. 4 and 9 corresponds with that of the street (which skirts their north side and is practically parallel to the main road from the east to the west gate), and consequently with that of Houses Nos. 2, 3, 7, and 8; but Houses Nos. 5 and 6 do not agree with it, nor yet are they parallel to the south wall of the town, nor do they agree in orientation between themselves. We are debarred from supposing that they represent an earlier arrangement of the streets of the town unless we are prepared (which we are not) to abandon our theory as to the mound,[b] which, as far as we have been able to trace it,[c] is everywhere parallel to the town wall which superseded it. We must therefore suppose that after Caerwent had ceased to be a purely military station more space was at first available than was necessary, so that the first constructors of houses put them down in a somewhat haphazard fashion; and that it was only later on that the town as a whole was laid out in regular *insulæ*.[d]

It will be noticed that both these houses have been built with more care than the other two. House No. 5 is, in fact, the most solid edifice that has so far been discovered at Caerwent.

We now proceed to describe the houses in detail.

House No. 4.

House No. 4 has a simple ground plan, the rooms being arranged upon two sides of a large courtyard,[e] without any corridors.[f] The walls are not as a rule

[a] The only authority which we can find for the existence of this cross is the statement made by Octavius Morgan (*Archaeologia*, xxxvi. 426 and Plate XXXVI.), who does not give any reasons for his assertion.

[b] *Ante*, p. 139.

[c] It is wanting in some places west of the north gate.

[d] This, as far as we can tell at present, seems to have been the case; and supposing that the arrangement of streets which we have brought to light reproduces itself in other parts of the city, we should have it divided into twenty *insulæ* by three roads (including the high road) from east to west, and four from north to south. The progress of the excavations seems to render this arrangement increasingly probable, but we must decline to speak with certainty on the subject.

[e] The courtyard was not apparently paved, but the natural gravel bottom was reached at about 3 feet 6 inches below the grass level.

[f] The dimensions of the several parts of this house, as numbered on the plan, are as follows:

preserved to any height in the west wing, and it is therefore not easy to make out how the various rooms were entered, though Rooms 1 and 4 may have led into Room 5, Room 5 into Room 6, and Room 6 into the courtyard. This, however, is pure conjecture, as only gaps in the walls, but no actual doorways, were found. No traces of floors were discovered, except in Room 6, where a gravel floor was visible in places. Room 3, from its shape and size, was probably a latrine.

The south wing is in a rather better state of preservation, and Room 11 still retains in its eastern portion a pavement of *tesseræ* of old red sandstone, with a few of brick interspersed. The slight divergences on this side from the orientation of the rest of the house may be due to a desire to approximate in some measure to that of Houses Nos. 5 and 6.

The northern portion of the east wall of the courtyard is evidently intended to reconcile as far as possible two different lines, of which it is clear that that of the west wall of House No. 6 is the older. The north-east angle is rounded.

House No. 5.[a]

This building may in later times have been connected with House No. 4, but in origin at any rate it was quite distinct from it. Its orientation is different and its construction dissimilar, its main walls being no less than 3 feet thick above the foundations[b] and very solidly built (fig. 1). At present it is almost entirely occupied by hypocausts, but unmistakable traces exist on the south wall of Room 1 of plaster painted red, and obviously intended for decoration, which, from the level at which it is, cannot possibly be supposed to belong to a room above the hypocausts, and must consequently date from a period when the house was not yet so heated.

(1) 16 feet by 12¾ feet; (2) 6½ feet by 10¼ feet; (3) 6½ feet by 2¼ feet; (4) 7 feet by 5¾ feet; (5) 7 feet by 5¾ feet; (6) 15½ feet by 35 feet; (7) 15½ feet by 12½ feet; (8) 22¾ feet by 12½ feet; (9) 23½ feet (north wall), 21¾ feet (south wall), by 13 feet; (10) 11 feet by 10½ feet; (11) 13¼ feet by 18½ feet. The courtyard measures 73 feet by 71½ feet (average measurements).

[a] The dimensions of the spaces as numbered on the plan are as follows: (1) 16½ feet by 12½ feet; (2) 16½ feet by 6¾ feet; (3) 16½ feet by 14½ feet; (4) 16½ feet by 14¼ feet; (5) 8½ feet by 9 feet; (7) 16¾ feet by 9½ feet; (9) 13¼ feet by 12 feet; (10) 22¼ feet by 20 feet; (11) 22¼ feet by 2⅜ feet; (12) 20½ feet by 10¾ feet; (13) 21½ feet by 81½ feet.

[b] A cut made outside the east wall of Room 1 shows that the wall has two offsets, giving a total increase of thickness of 6 inches immediately below the level of the upper floor, while 4½ feet lower comes a foundation of rough stones 1 foot deep, projecting outwards 6 inches more.

The only other signs of reconstruction are to be found (a) in the remains of a drain[a] (the beginning and end of which have been cut off by the present walls of the room) at the north end of Room 1, and (b) in the wing walls dividing Rooms 3 and 4, which were originally closer together, if indeed they did not form one wall, but were afterwards (probably when the hypocausts were put in) shortened to about 3 feet on each side. The plan of the building is by no means easy to

Fig. 1. Caerwent. Part of House No. 7.

understand, as a good deal of it has been quarried for the sake of building material, and the walls are not preserved above the level of the floors of the rooms except in a very small degree. It would seem necessary to assume the existence of a room (numbered 6 on the plan) to the south of Room 5 (though none of its walls is preserved), as a floor of gravel concrete was found there, which probably was the lower floor of a hypocaust like the rest.

[a] This drain measures 10 inches wide by 9 inches deep, and the length preserved is 11 feet.

The west walls of Rooms 2 and 7 have similarly disappeared, and also considerable portions of those of Room 8 and of the space numbered 11.

At the north end we have a small rectangular space, measuring 4 feet by 4½ feet, approached by an entrance only 1 foot 8 inches in width, which must have been reached by the narrow alley at the south-east angle of House No. 4, and which was obviously sunk below ground, as its side walls are faced on the inside only.

Room 1 has no remains of any hypocaust, but has a massive floor of two layers of large sandstone blocks, which are flush with the concrete floors of Rooms 2 to 4. An earlier drain at the north end of the room has been already referred to.

Room 2 is separated from Room 1 by a wall in which was a flue opening about 3 feet in width, with tiled sides; the removal of some of the tiles prevents the measurement from being more accurately taken. It will further be noticed that in this room, as in Rooms 3 and 4, the *pilæ* are preserved (as a rule to a height of three or four tiles one upon the other)[a] on the west side only, whereas upon the east side none is preserved and only three or four are traceable. This may perhaps be taken to indicate that the western side of this range of rooms was filled up with rubbish, and was therefore not disturbed by those who removed the tiles from the east side, though the entire removal of the west wall of Room 2 may invalidate this supposition as far as that room is concerned.

The only trace of the upper floor is to be seen in the north-east angle of Room 2, and its undersurface lies at no less than 3 feet 10 inches above the level of the lower floor, its thickness being 10 inches. The *pilæ* of a hypocaust are not as a rule more than 2 feet in height, and this is the height advised by Vitruvius[b] though a height of 3 feet 3 inches was noted in the *pilæ* (composed of tiles) of a hypocaust of the baths at Brecon,[c] and in the partly excavated remains of a villa near Rome there is a hypocaust of which the *pilæ* must have been about as high, being composed of three or more socketed drain pipes, each about 1 foot 1 inch in length, and not always fitted into one another.[d] In the baths at Wroxeter this height seems in one case to have been even greater: from the level of the thres-

[a] The maximum is six, in the north-west angle of Room 3.

[b] V. 10 (11) 2. *Cf.* Marquardt, *Privatleben der Römer*, 284.

[c] *Archæologia*, vii. 205.

[d] See *Papers of the British School at Rome*, i. 165.

hold on the east side of Room 6 in Mr. Fox's plan[a] to the floor on which the *pilæ* stood the drop is about 4 feet 10 inches, which, allowing for the thickness of the floor, would give about the same height to the *pilæ* as in the case at present under notice. In the baths now (1903) being excavated at Silchester the tallest *pilæ* measure 3 feet, but they are not standing to their full height.

Besides Rooms 2, 3, and 4, Room 5 had also a hypocaust with *pilæ* of tiles, the heat being obtained from Room 3 by an opening in its east wall. Room 6 has been much ruined, and little can be made of it, but Room 7[b] seems to have had a channelled hypocaust, to judge from the triangular mass of concrete in its north-west angle, though the aperture between it and Room 4 is very small, while Room 10 must have had a hypocaust of tiles, to judge from the fragments of square tiles discovered in it and from the existence of a stoke-hole opening, 2 feet in width, in its south side, though no traces of the *pilæ* can be seen upon its concrete floor.

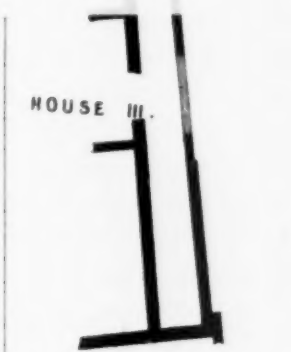
In all these rooms, too, masses of floor concrete, burnt earth, and fragments of the tiles were found in profusion. The tiles were as a rule fixed to the wall by a nipple projecting from the cement lining of the wall and fitting into the tile, though some were fixed by iron T-bolts. The latter were longer and narrower than the former, measuring about 14 inches long by 4½ inches square, as against 6 inches long by 7 inches by 3½ inches. The most common type of scoring upon the side that had to take the wall plaster, which decorated the interior of the room, is the lozenge shape.

The drain referred to as starting in Room 1 runs straight through Rooms 2, 3, and 4. (See plan, Plate XXVI. and fig. 1.) In Room 2 it has a smaller lateral drain on each side, while in Room 3 it has two such feeders on the east and three on the west. Into the central one of the latter falls a drain passing through the centre of Room 5, but with this exception, none of the lateral drains can be traced beyond the inner side of the walls of the rooms.[c] In Room 4 are no lateral drains. The main drain passes through the wall of this room by an opening intended probably to let heat as well as water into the room. The top of it is 1 foot

[a] *Guide to the Roman City of Uricomium* (1902).

[b] Here was discovered a small piece of coal, 2 feet 1 inches below modern grass level. Soot was also found upon the floor.

[c] The main drain measures 11 inches wide by 9 inches deep, the lateral drains 8 inches wide by 9 inches deep. Both were originally roofed with tiles or old red sandstone slabs, which are well preserved in the case of the lateral drains.



C.F.KELL & SON, LITH.

floor on which the *pilæ*
r the thickness of the
case at present under
Silchester the tallest
eight.

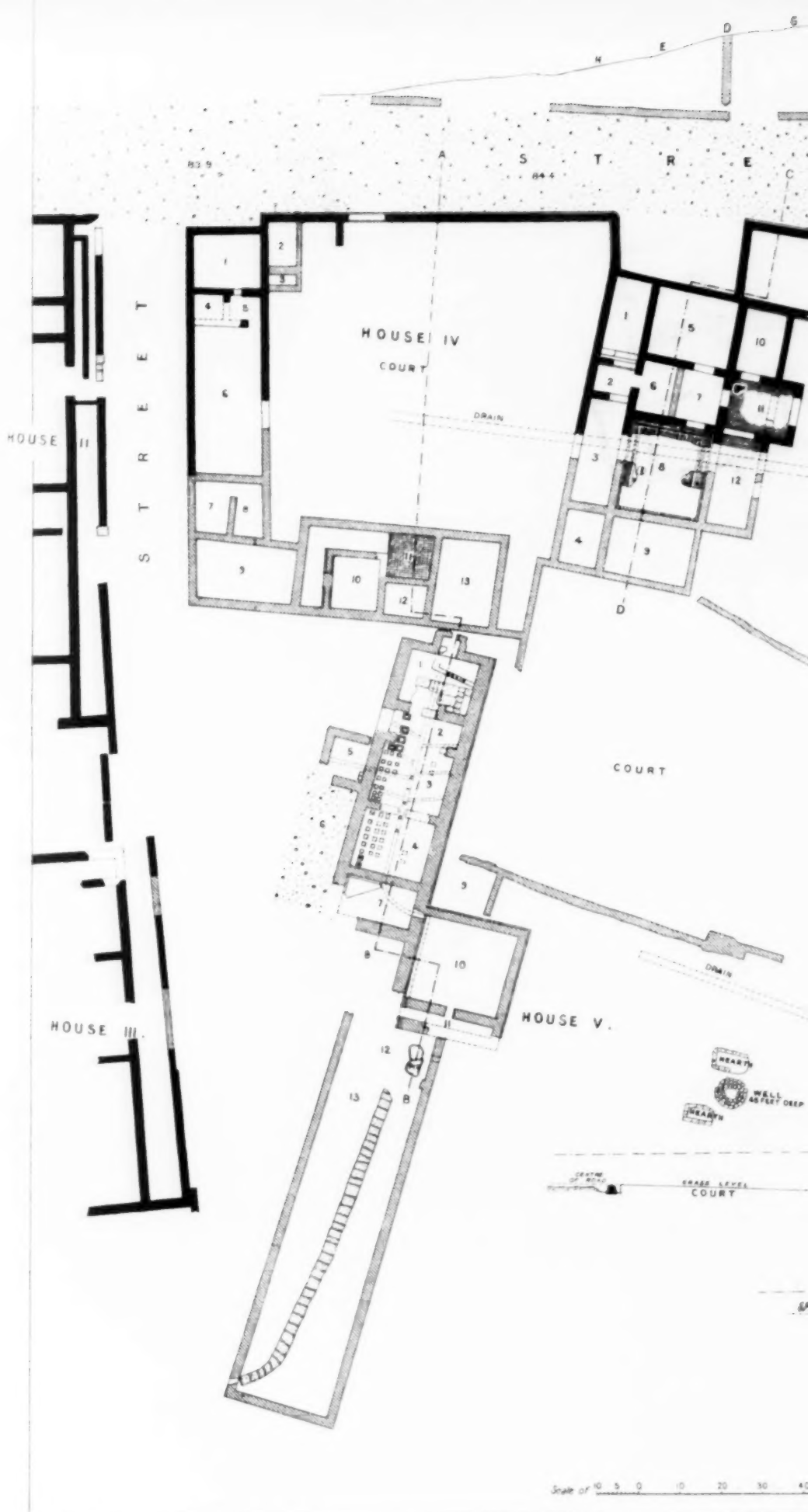
ist with *pilæ* of tiles,
ast wall. Room 6 has
seems to have had a
concrete in its north-
is very small, while
rom the fragments of
a stoke-hole opening,
ilæ can be seen upon

t earth, and fragments
ile fixed to the wall by
d fitting into the tile,
longer and narrower
ches square, as against
type of scoring upon
ed the interior of the

raight through Rooms
om 2 it has a smaller
ch feeders on the east
er falls a drain passing
ne of the lateral drains
is." In Room 4 are no
his room by an opening
The top of it is 1 foot

modern grass level. Soot

eral drains 8 inches wide by
dstone slabs, which are well



C.F.KELL & SON, LITH.

CAERWENT. PLAN OF HO

HOUSES. IV, V, VI AND IX.

3 inches above the floor of the hypocaust, and it is 1 foot 5 inches wide at the bottom, and 9 inches at the top, the sides being formed of three stones on each side gradually converging, until they are covered by a lintel 1 foot 3 inches long

Fig. 2. Caerwent. Drain outlet in House No. 5.

(fig. 2). This style of construction is a quite natural one, and it appears also in the stokehole of Room 10. When found on a larger scale it has till lately been supposed, with what foundation we need not inquire here, to argue a very early origin, dating from the time when the principle of the arch was unknown. But that arches were already constructed at a very remote period in Egypt at any rate is shown by the discovery of an arch in the tomb of a king of the Third

Dynasty,[8] while, if this be considered hardly to the point, there are several instances in Italy of the use during the Roman period of the style of which we have been speaking.

After passing through this aperture the drain curves sharply round as it passes through Room 7, and enters Room 10 at its north-west corner; here it turns again at a right angle, follows the western wall of Room 10 to the south-west corner, passes through its southern wall, and through the west end of the south wall of the space numbered 11, which must have been an approach to the stokehole of Room 10, and then falls into a pit. This pit was of irregular outline, but nowhere reached a depth of more than 8 feet below the grass level, and the discoveries made in excavating it were disappointing, no pottery or other objects of any importance having been found. Into this pit also opens a rectangular hole 1 foot by 8 inches, which passes through the east wall of the space numbered 12, but no drain can be traced further to the east.

The overflow from this pit seems to have been taken by a large drain 1 foot 5 inches wide by 2 feet high, floored with gravel and roofed with slabs of old red sandstone.

This drain contains too many Roman objects, coins, fragments of pottery, etc. to have been merely a modern field drain, though one cannot but be surprised at the way in which it meanders through the long narrow enclosure (No. 13). This enclosure is in itself a remarkable piece of construction, the object of which is quite uncertain; it comes much closer to the south city wall than any other building in this part of the town.

The drain has an irregular exit through the west wall of this enclosure close to its south-west angle, but we were unable to trace it any further, or to find the cesspit into which it must have fallen. The slope of the ground forbids the supposition that it also drained into the pit at its north end.

To the east of House No. 5 is a large open court subdivided by rough irregular foundations of later walls, two of which help to form the space numbered 9 on the plan. Part of it seems to have formed a yard attached to House No. 6, while the rest may have belonged to House No. 5. In this space, 56 feet to the east of Room 10, is a well, 45 feet in depth from the top of the stonework, which begins at 4 feet below the modern grass level, to the solid

[8] Garstang, *The Third Egyptian Dynasty*, plate xiv. *Cf.* also Mahásna and Bêt Khallâf (7th memoir of Egyptian Research Account, 1902, plate 6 and p. 9).

limestone rock at the bottom. The lining is rough drywalling throughout, strongly built and about 3 feet in thickness, the diameter of the well being 2 feet 2 inches at the top and 1 foot 6 inches at the bottom. Little was found in it during the difficult and dangerous operation of clearing it except remains of the wooden bucket with iron handle and rims, some bones of animals, and a few fragments of pottery. Two hearths built of sandstone blocks, showing considerable traces of burning, were found four feet north and south of the well respectively. Nothing was discovered that gave any clue to their use.

North of the well there was found a series of pits dug in the natural clay, two of which are in communication with a drain running east and west, about 2 feet deep, 2 feet across at the bottom, and 4 feet at the top, also cut in the clay. The pits are of various sizes; one of them, just north of the drain, into which it overflows, is as much as 11 feet deep and 6 feet 6 inches square, being cut down to the solid rock. That which lies in the line of the drain is 3 feet 9 inches deep from the bottom of it. The two north-east of the large pit, which overflow into one another, but not into the drain, are respectively 6 feet 4 inches and 4 feet 6 inches square. Some pottery and bones were found in these pits, the object of which is quite uncertain.

Very little plaster was preserved in House No. 5, and what was found was mostly either plain red, or white with a thin red line; in Room 10 some with red, mauve, and yellow lines on white ground also occurred.

One would think House No. 5 must have been used as a series of baths, even if that were not its original object. Room 1 would probably be the stokehole or *praefurnium*, as it was, even more than the other chambers, full of burnt material and soot. Rooms 2, 3, 4 would then be the hot bath,[a] the *tepidarium* and the *caldarium* respectively, No. 5 perhaps the hot bath attached to the *caldarium*, Nos. 7 and 10 the *apodyteria*, though No. 7 can have been only very slightly warmed and perhaps contained the cold, or nearly cold, bath, and No. 8 the *frigidarium*.

It should not be forgotten in this connection that the small private baths discovered in Caerwent, in the south-east corner of the city, by Mr. Octavius Morgan in 1855[b] are taken as the best available example of a building of this sort by Marquardt in his *Privatleben der Römer*, p. 292. These have in Room H an unmistakable *laconicum*.

[a] Room 2 is not a *laconicum*, for the opening between it and Room 3 is too wide.

[b] *Archaeologia*, xxxvi. 432-437, and Plate XXXVI.

House No. 6.

This house is, as we have already seen, not orientated with the street which passes to the north of it; and, from this fact and from the regularity of its construction, most of the rooms being nearly, if not quite, rectangular, it may perhaps be assigned to a fairly early period.

It consists simply of three parallel[a] ranges of rooms, for one cannot suppose that the western range, Rooms 1 to 4, formed the corridor, as the crosswalls are too high to be mere sleeper walls; and there is no direct communication with some of the rooms on the east. None of these rooms contains anything of importance, and only in Room 3 is a gravel concrete floor preserved.[b] Room 1 seems to have led into Room 2,[c] and Room 2 into Room 3, while the walls of Room 4 are not preserved above the level of the foundations. There was apparently no access from the courtyard of House No. 4, though a space broken through the middle of the west wall of Room 3 for a modern water pipe prevents absolute certainty on this point from being attained. Nor could Room 5 be entered from Room 1, while the east walls of Rooms 3 and 4 are too dilapidated to retain traces of doorways. Room 6 was accessible by a doorway from Room 2. The central range (Rooms 5 to 9), with the three rooms to the east of it (10 to 12), is in a fairly good state of preservation. Room 5 has its walls standing to a height of about 2 feet; the dado of painted plaster is still preserved. It is similar in character to that found in House No. 7, described and illustrated in the last Report;[d] but here there is no attempt at architectural perspective, the dado consisting simply of panels of varying size, divided by bands of red bordered with white. A tracing was made of the best preserved portion; it consists of a

[a] The dimensions of the rooms are as follows: (1) 8½ feet by 19¼ feet; (2) 8½ feet by 6½ feet; (3) 9 feet by 24½ feet; (4) 9 feet by 13 feet; (5) 19 feet by 16 feet; (6) 7¾ feet by 12 feet; (7) 9¾ feet by 11¾ feet; (8) 19¼ feet by 21¼ feet; (9) 19½ feet by 13¼ feet; (10) 9½ feet by 15 feet; (11) 14½ feet by 12 feet; (12) 9½ feet by 21 feet; (13) 35 feet by 16½ feet (average width).

[b] In the north-east angle of Room 1 was found a perfect pot of black ware bedded into clay.

[c] The northern of the two walls is the earlier in date, but no traces of its prolongation either east or west could be found, so that it is merely a local reconstruction, and the width of the doorway was the same as in the later wall, 5 feet 4 inches.

[d] *Ante*, Plate XII.

greyish white base, 3 or 4 inches wide, next the floor, above which is a light red band $2\frac{1}{4}$ inches wide, bordered above by a white band $\frac{1}{2}$ inch wide. This red band above the greyish white base is continued the whole length of the tracing (about 10 feet), and forms the lower border of the frames enclosing the panels. Of these the first panel is light red with yellow blotches, the second ochre yellow with a few blotches of light and dark red and white, the third ochre yellow with red and white blotches, and the fourth light red with a few large yellow spots. These panels remain to an average height of 1 foot 2 inches, and measure in width (1) 3 feet $8\frac{1}{2}$ inches; (2) 1 foot 11 inches; (3) 3 feet $4\frac{1}{2}$ inches. Panel No. 2 has an inner frame of bluish grey 1 inch wide bordered with white inside the red bands, and a similar blue grey band edged with white is visible to the left of Panel No. 1, which, itself, has no inner frame. The whole wall is splashed with large blotches of colour, apparently roughly put on with a wet brush after the rest was painted, as they appear on the borders as well as on the panels. The colours are not unlike those of the upper layer of plaster in the panelled room of House No. 7, and are therefore probably late work, but here another coat of plaster, which has almost entirely disappeared, has been superposed at a later period. The floor is of hard gravel concrete, as are also the floors of Rooms 6, 7, and 10.

Room 5 has a well-defined doorway into Room 7, but had no entrance into Room 6, as the edge of the plastering on the north wall of this room shows, while the wall between Rooms 6 and 7 is worn down to floor level, so that the position of the doorway, which must have existed to give access to Room 6, except on the improbable supposition that it could only be entered from Room 2, is uncertain. Room 7, which must have been a kind of lobby, also led into Room 11 and Room 8; the latter had a large mosaic pavement, of which some traces remain, with a margin of old red sandstone *tesseræ* with a few stray brick *tesseræ* among them. The key pattern border, black on white, is well preserved on the north side, and traceable on the west, but it was never carried round the east side, which had a guilloche pattern border. The middle of the pavement was occupied by geometrical designs: the *tesseræ* were white, blue-grey, red, and yellow. The level of the pavement has sunk except where it rests upon the stone footing of the north and east walls. The destruction of its northern portion is due to the laying of a water pipe a few years back, while on the south cultivation has so reduced the level of the ground that it is only 5 inches above the level at which the pavement would have reached the south wall of

the room. The floor of Room 9 has in consequence entirely disappeared, and the doorways which probably gave access to it from Rooms 4 and 8 are not traceable.

Room 10, the walls of which are lined with rough uncoloured plaster, leads into Room 11, which has been enlarged by an extension eastwards, it having originally been of the same width as Rooms 10 and 12. A doorway is still traceable[a] in its earlier east wall, of which the threshold is 5 inches lower than that in the later wall, which is 7 inches below the pavement of the later room. This extends over the whole, covering entirely the earlier east wall; it is of brick *tesseræ*, with a few of old red sandstone interspersed. In one case a small piece of a scored flue tile has been made use of. The doorway at the east end of Room 11 leads into a yard, originally paved with a gravel concrete floor, most of which has perished, and enclosed by rough irregular walls, not preserved above foundation level. In this yard against the south end of the east wall of Room 10 the bottoms of two pots of black ware were found, the lower fixed into the ground, the upper placed upon it; and 6 feet further north another practically perfect measuring 7 inches in diameter in the mouth, and 1 foot 1 inch in height. Yet another was found outside the east wall of Room 12 at its north end. Nothing but fine earth was found in any of them, and why they were placed there is doubtful; possibly they were used to contain birds' food, they were hardly strong enough for flower pots.

Room 12 is reached from Room 11, and may have led into the courtyard on its east side; it also contained a mosaic pavement, which has almost entirely perished.[b] Only the border of old red sandstone *tesseræ* and one or two lines in black and white remain.

At the north-east angle of the house is a large room or space (numbered 13 on the plan) with a gravel concrete floor. It was entered from the courtyard by a doorway 6 feet 6 inches in width, paved with sandstone slabs, with a rough step of the same material just inside the room. In the south-west angle of this a large hoard of coins was found, of which a detailed description will be given in a later report. They number between seven and eight thousand, and range in

[a] The earlier gravel floor concrete is also visible where the later pavement has perished, but its level is difficult to fix.

[b] In the yard just outside this room two fragments of a column, 1 foot in diameter, were found; the first was 2 feet 6½ inches long, with a dowel hole, 2 inches square, at each end, the second 1 foot 2½ inches, with a dowel hole at one end only, the other being broken.

date from Gallienus to Honorius, A.D. 253 to 423. Of the two or three thousand which have been examined more than one-third belong to the reigns of Theodosius and his two sons. Nearly all are the so-called *minimi*, copper coins of fourth brass size.[a] They are mostly in very poor condition, having been badly burned, and of about one-third it is impossible to make out the reigns to which they belonged. The hoard did not contain any coins of Carausius or Allectus and only a few of Constantine the Great. With this hoard was found an iron hoop, 11 inches in diameter, made of a double band of iron, $1\frac{1}{8}$ inch in width. From its shape it is clearly the hoop of a bucket, and a little wood still adheres to it. It is quite possible that the coins had been placed in the bucket for concealment. Another much smaller ring was also found, 6 inches to 8 inches in diameter, also a lead steelyard weight, weighing $13\frac{1}{4}$ ounces, a pair of iron sheep clippers, to which one illegible coin adheres, part of a horse's bit (?), and some charcoal (small twigs). The floor of the room is only 1 foot 8 inches below grass level.

In this room were also found three fragments of the capital of a column with the astragal and part of the drum, which fitted together and gave a total length of 1 foot 11 inches. The diameter of the column was 7 inches, and the abacus was $11\frac{1}{2}$ inches square.

Outside its north wall a large heap of common pottery was found.

To the east of this room, and in line with its south wall, a doorway gives access to the street from the court of House No. 6, opening into an alley about 11 feet in width, paved with pebbles. The doorway was for a single door about 5 feet in width; the stone threshold blocks, with a pivot-hole on the east side, $4\frac{1}{4}$ inches in diameter, the doorstop on the west, and the slits for the wooden framework on each side, are all well preserved. To the east of this doorway was found a finely-moulded double cornice block, measuring 1 foot $10\frac{1}{4}$ inches long by 2 feet $10\frac{1}{2}$ inches wide over all, and 6 inches thick (fig. 3). It was not *in situ*, of course, and whence it came is doubtful, possibly from the west gate of the city, or from the important buildings which there is reason to believe existed on the north side of the street. An earth drain, apparently of post-Roman date, runs east and west through the southern portion of House No. 6 and the courtyard of House No. 9. It was not detected in the excavations of 1900, so that its western prolongation is uncertain, while on

[a] See Marquardt, *Römische Staatsverwaltung*, ii. 33.

the east it ends abruptly near the churchyard wall. It was of about the same

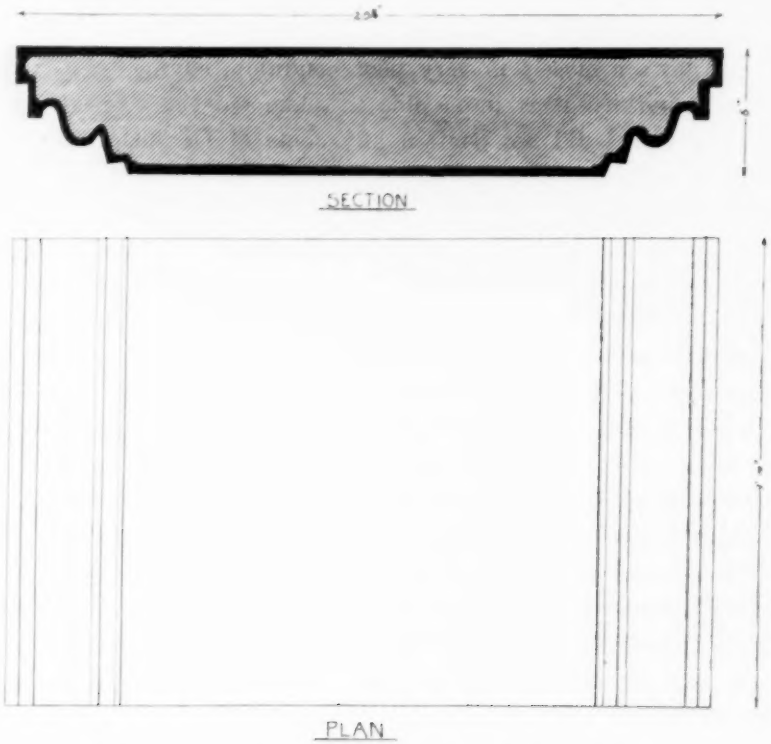


Fig. 3. Caerwent. Cornice block found in House No. 6. (¼ linear.)

dimensions as that above described, but had no connection with it. Its line was followed by the modern waterpipe before referred to.

House No. 9.

To the east of Room 13 of House No. 6, the line of the street[a] is once more taken up by the north wall of House No. 9.[b]

[a] The street is here 22 feet in width, as against 25 feet opposite the centre of the courtyard of House No. 4, and 23 feet at its north-east angle; while between House No. 7 and House No. 2 it is 18 feet to 20 feet wide, though in the earlier state of the north wing of House No. 2 it must have been about 4 feet narrower. See *ante*, p. 127.

[b] The dimensions of the various spaces as numbered on the plan are as follows: (1) 15 feet by

This building has been much destroyed, and several hearths, one of which has sides of old red sandstone slabs, have been inserted at a later time, resting upon the wall that divided Room 1 from Room 3, which must therefore have been levelled down at the time the hearths or furnaces were in use. The floors are mostly of good gravel concrete, destroyed in some places: otherwise there are hardly any traces of the original internal arrangements of the house. Perhaps there was once a hypocaust in Room 1, as some rectangular flue tiles were found here. On the west side of Room 4 a large deposit of iron objects was found, including a hammerhead, many strips of iron, some of which are pierced with round holes for nails, and must have served as bands for door-hinges, etc. nails, and the fragments of a small bronze vase. These are almost certainly of Roman date; the bronze vase at any rate belongs to the Roman period.

The southern portion of the house has been reconstructed, and the older south wall, marked in outline on the plan, can still be traced. In the later south wall there is a wide doorway paved with old red sandstone slabs, leading out on to a space, some part of which was pitched. To the south of this wall again is another, only about 1 foot distant from it, connected probably with others further to the south.

To the north of the street which bounds Houses Nos. 4, 6, and 9, on the north we have only a narrow strip at our disposal, while on the east of House No. 9 the churchyard wall precludes the completion of the excavation of the north-east portion of this building. In the south-east corner of the courtyard is a small space with an aperture in the north-east corner 7½ inches wide. Its purpose is quite uncertain: it is conceivable that it was a small furnace, but no traces of burning were found in it.

To the east of House No. 9, and south of the churchyard wall, are other buildings which have not as yet been completely excavated, and which will be described on another occasion. Nothing worthy of remark was discovered on the north of the road, and the remains of walls which we have found there are much ruined. Close to the churchyard wall we have found no less than four human skeletons, but these are probably the remains of persons who "have died unbaptised, or excommunicate, or who have laid violent hands upon themselves," and were therefore buried just outside the consecrated area of the churchyard itself.

15 feet; (2) 16 feet by 15 feet; (3) 17¼ feet by 20 feet; (4) 7¼ feet by 10 feet; (5) 20 feet wide, length not ascertained; (6) 9 feet to 6¾ feet wide, length not ascertained; (7) 11½ feet by 5¾ feet.

The annexed plan (fig. 4) shows the progress of the excavations down to March, 1903.

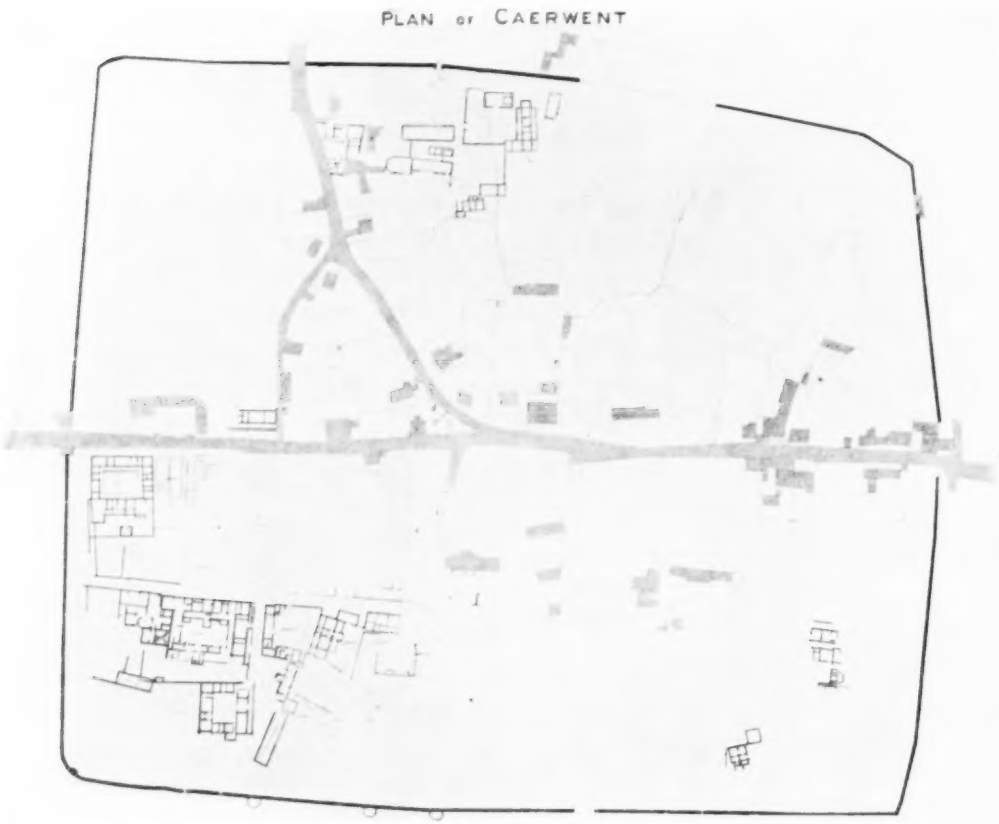
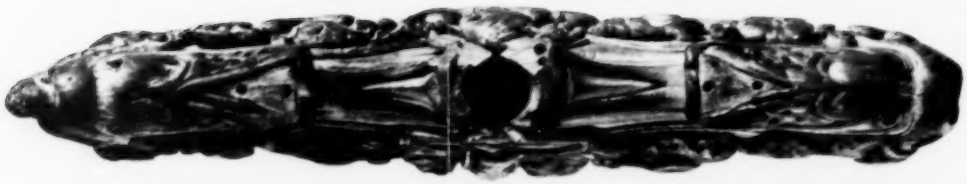


Fig. 4. Plan of Caerwent, showing discoveries down to March, 1903.



XVII.—*On a Morse Ivory Tau Cross Head of English work of the Eleventh Century.* *By* CHARLES H. READ, *Esq., Secretary.*

Read 12th February, 1903.

THE beautiful ivory carving exhibited by the Rev. A. H. Williams (Plate XXVII.) is not only an object of great rarity, but is of exceptional interest from the fact that it is an altogether admirable example of the work of our Saxon ancestors before the Norman Conquest. Although from age and long burial much of its original glory has vanished, enough remains to excite admiration at the cunning skill of the craftsman who fashioned it.

It is carved from the tusk of a walrus, a material somewhat harder than the ivory of the elephant, and is in the form of two volutes springing from the point where it was attached to the staff of which it formed the head. The inner curve of the volute now only remains on one side, and terminates in the head of a gryphon with open beak grasping a curved end of foliage. The other side was doubtless of the same design. The body of the curve on each face is covered with conventional foliage in high relief and deeply undercut, and enveloped in its convolutions are fantastic animals, two on either side, each resting on a bracket ornamented with interlacing ornament. Near each of these monsters is a large open flower somewhat resembling a convolvulus, a peculiar feature for which I have been unable to find a parallel in any of the work of this period. The outer edge of the extreme end of each volute has a rib pierced with holes about $\frac{1}{8}$th of an inch apart, as if pearls or other jewels had been threaded along it. Above, on the shoulder of the volute, is an additional number, independent of the curve, in the form of the head and neck of a dog-like animal with open mouth and huge canine teeth, which hold some interlaced object now difficult to define. The ears of these animals are extended far backwards and ornamented with interlacing bands like the brackets before mentioned, and much resemble at first sight the wings of a cicada. On each face between the spring of the volutes is a central subject. One represents the Crucifixion, the figure of Our Lord being girded with a waist cloth reaching below the knees, and having His head with a cruciferous nimbus drooping to His right side; the feet are unfortunately missing.

The other subject shows within a vesica Our Lord triumphant over the powers of Evil. Clad in a long robe, apparently bound by a girdle, he appears to be proceeding towards his right, nimbed, and holding in his right hand a long-stemmed cross, trampling with his right foot upon a prostrate lion, and beneath his left is a winged dracontine creature like those among the foliage of the volute. In addition to the designs and ornaments described, there are plain spaces left between the curves of the volutes and the wavy line of the upper border; beneath the dogs' heads and between their ears are also similar spaces, these having holes drilled in them. It is unlikely that they were intended to be left plain, and I conjecture that they were covered with plates of gold. Some force is given to this supposition by the remains of heavy gilding that still remains

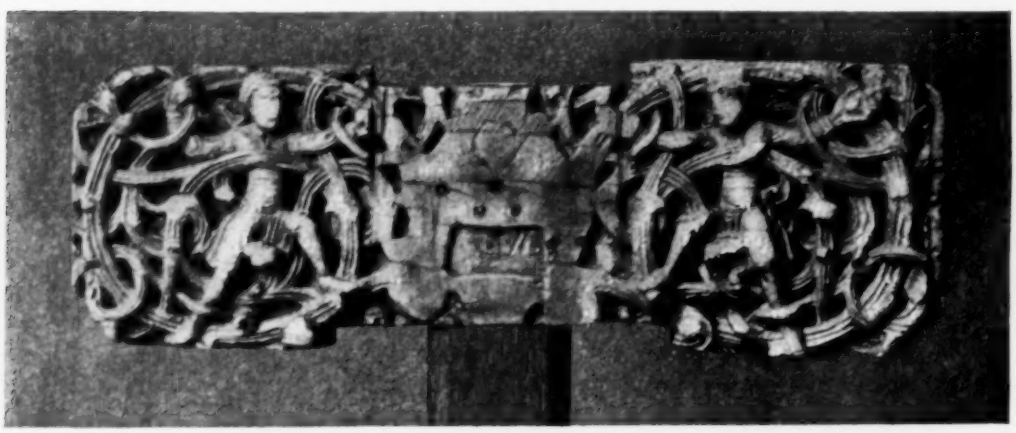


Fig 1.—Tau head of elephant ivory, with human figures and monsters involved in foliage. This interesting piece is unfortunately damaged. (Maskell, *Ivories*, p. 135.) In Victoria and Albert Museum (372.71). (Full size.)

in the interstices of the carving, and it seems not improbable that the whole of the ground was gilt and that the ornament was even partly coloured. From the lines of the upper border, immediately above the principal subjects, it seems likely that a central boss or finial projected upwards, such as is seen in a similar tau head in the Basilewsky Collection in St. Petersburg,[3] and in a later "staff of the ruler of the choir," formerly in the Magniac Collection, but now, alas,

[3] Schnopkens, *Trésors de l'art ancien en Belgique*, pl. 8. This piece is there described, as well as in Westwood's *Fictile Ivories*, as being in the collection of Baron de Crassier, but it seems certain that it is either the piece now at St. Petersburg or the tau in the South Kensington Museum (fig. 5) (No. 371-71). Both seem identical in details. Compare the description in Darcel and Basilewsky, *La Collection Basilewsky*, No. 86, and Maskell's *Description of the Ivories*, *sec.* 134.

like so many of our former possessions of the same kind, in a foreign collection. The limited width of the tusk probably would not allow this projection to be carved from the same piece of ivory, and it was therefore fixed by rivets, of which the four holes still remain. The socket at the base is hexagonal, and the staff passed into it and up through the middle being held fast by a bronze pin, while the mount to conceal the junction was held by smaller pins, some of which still remain.

The origin of the tau cross is by no means clear. It is somewhat curious that its latest form, that of a sturdy letter T, most nearly resembles some of the earliest, though these have a long staff. It may be permissible to hazard a conjecture whether such an instrument was not in its origin a simple crutch designed

Fig. 2. Tau head of morse ivory, of Rhenish work, if authentic. Maskell was clearly more than doubtful on this point, and the difference in style between the figure of the ecclesiastic and the rest of the work is not in favour of genuineness. (Maskell, *Ivories*, p. 105.) In Victoria and Albert Museum (262.67). (Full Size.)

to support the bearer during a long office, in the same way as the oriental uses a shorter support, placed under the armpit when seated. In the Abyssinian church a tau staff is part of the paraphernalia of a priest and is intended for use as a support, as well as in the religious dances which form a part of the ceremonial of the church.[a] The actual examples that remain to us, however, which mostly belong to the eleventh and twelfth centuries, show a development and apparently a mass of symbolism that dismiss the idea of mere utility, and are strongly in favour of a ceremonial use and meaning. This is the case with the example now before us, where the elaboration of the ornament is so great as almost to preclude the use of it merely as a support, while on the other hand it favours a ceremonial or ornamental purpose.

[a] See *British Museum Guide to Early Christian and Byzantine Antiquities*, 1903, p. 96 and fig. 68.

There is fortunately no need for me to be diffuse in this place on the various instances of the tau cross, for the subject has been exhaustively treated by the learned Jesuit Arthur Martin, in *Mélanges d'Archéologie*, iv., where he gives an admirable account of the pastoral staff in its successive forms, among which he includes a number of the tau form, both from original examples and from manuscripts. But, although it is easy to discern a relation in form between the tau and the crozier, the connection is still obscure. The late William Maskell, in his time no mean authority on such a subject, discusses this point in his *Description of the Ivories in the South Kensington Museum*, p. lxxv. He says: "The tau is commonly seen and given without apparent distinction to bishops and abbots in manuscripts of the eighth and ninth centuries . . . . The extremities of the taus were often hollowed in order to receive relics . . . . . Ivory taus are of great rarity. They were gradually superseded towards the end of the twelfth century by that form which, with certain varieties of ornament, has continued down to our own time." This would seem to imply that the tau was simply an early form of the crozier.

M. de Longpérier, however, advances another theory in a memoir on the Magniac double crozier, in the *Revue Archéologique*.[a] After stating that it is, in his judgment, an episcopal crozier and not a *bâton de chantre*, he figures a denier struck by the bishops of Constance in the thirteenth century (pl. 79, 4) in confirmation of his theory. This certainly shows two staves, each with the double volute, like the Magniac specimen; and it would surely be improbable that a bishop would choose the emblem of a lesser dignitary to figure on his coinage. Where, however, I cannot follow M. de Longpérier is in thinking that the double character of the head of the staff is intended to indicate the possession of two sees by the holder. It would seem more probable that the modern single crook form was scarcely fixed, even in the thirteenth century; and the double head, in view of its symmetrical lines, is certainly, of the two, the one that should have survived, if regard be had only to its artistic qualities. Dr. F. G. Lee, in his memoir on Episcopal Staves,[b] regards the tau staff as being an earlier form of the later crozier, and gives references to those known to him, including the fine series in the South Kensington Museum. But he was more concerned with symbolism and terminology than with the origin of the form.

It would certainly appear from the numerous examples given by Martin, dating from Visigothic times onwards, that the crooked staff and the tau were carried by saints, bishops, and abbots, without distinction, and Pugin in his

[a] Vol. iv. (1847), 816.

[b] *Archaeologia*, li.

Glossary makes a statement of similar effect. The quotations given by the latter seem to show moreover that the cantor's staff had usually a pommel at the top and not a cross-bar, though one in Saint George's Chapel, Windsor, "for the precentor in the choir," had "five bands in the height and a cross-piece of ivory set in silver, with a crystal knop at the top." On the whole there seems to me every probability that we have here a pastoral staff rather than that of a precentor. The subjects with which it is adorned rather favour this supposition, being as they are symbolic of the principal beliefs of the Christian world, while the subjects on the cantor's staves, if any, are of the more ordinary devotional character, such as a figure of the Virgin, a patron saint, or the like. Further, it

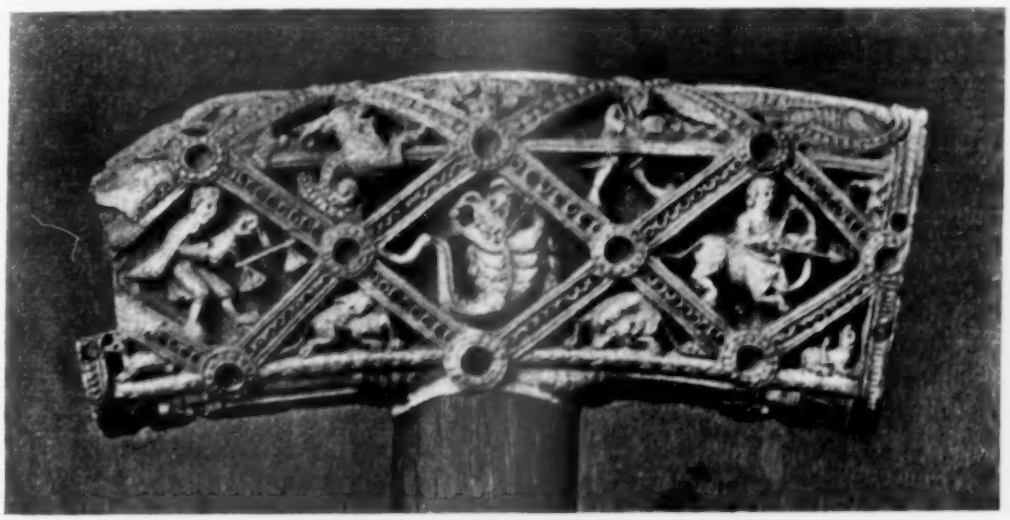


Fig. 3. Tau head of morse ivory, wanting the two ends. It is carved in high relief with the Signs of the Zodiac beneath are two ecclesiastics, one holding a crozier, the other a tau. This piece probably dates from the end of the eleventh century. It is described in detail and figured in *Mélanges d'Archéologie*, iv. 181. (Maskell, *Ivories*, 47.) In the Victoria and Albert Museum (215-65); formerly in the Soltykoff Collection (Lot 208). (Full size.)

must not be overlooked, for what it may be worth, that all the original tau crosses still existing, and mostly as before stated of the eleventh and twelfth centuries, are invariably connected with bishops or abbots where they have any history at all.

It would be a satisfaction if one could conjecture to whom this charming piece of truly English craftsmanship originally belonged, or by whom it was made. But eloquent as it is in many ways, its imagery gives no hint on either point, and we must be content to treasure it for its inherent qualities. As to its age, for my own part I have no hesitation in assigning it to a date before the Conquest, probably in the first quarter of the eleventh century. I know that more than one experienced opinion is in favour of a period a century or more later, in deference

Fig. 4. Ivory seal of one Godwin the minister, found with a comb and whetstone at Wallingford, Berks, and described in detail in *Proceedings*, 2nd S. viii. 168, whence this figure is here reproduced in order to show the similarity of the modelling of the figures. In the British Museum.

to the Early English character of some of the foliage, and to the very naturalistic modelling of the standing figure of Our Lord. But a comparison with the Saxon manuscripts of the late tenth and early eleventh centuries for the foliage, and with the ivory seal of Godwin the minister in the British Museum (fig. 4) for the figures, I am convinced that there is good reason for adhering to my first opinion. The Harleian MS. written about 980 at Winchester, probably for Bishop Ethelwold, shows the same style of foliage, with the exception of the one naturalistic flower. The seal of Godwin is credibly assigned to the middle of the tenth century. If therefore from 950 onwards the Saxon scribes and carvers were capable of producing those two pieces of work, there can be no difficulty on the score of quality in accepting the date I assign to the ivory carving now before you. Further, its general similarity to others of approximately the same time, and the fact that the end of the twelfth century saw the introduction of the fully developed crozier, seems to point to the same conclusion on general grounds.

Note.—Since this paper was read, the Rev. A. H. Williams has been good enough to cede this interesting object to "The Friends of the British Museum," an anonymous group of benefactors who have presented it to that institution.

Fig. 5. Tau of morse ivory, resembling in design fig. 1. The note (*) on page 2 refers to this piece. Probably Rhenish work of the eleventh century. In Victoria and Albert Museum (371.71). (Full size.)

XVIII.—*Excavations on the site of the Roman city at Silchester, Hants, in* 1902.

By W. H. St. John Hope, *Esq.*, *M.A.*

Read 28th May, 1903

I have the honour of laying before the Society, on behalf of my colleagues, a report of the operations carried out by the Executive Committee of the Silchester Excavation Fund during the year 1902, being the thirteenth successive season of the systematic exploration of the site.

The work, which was begun on 15th May and continued without break until 17th November, was carried on throughout under the direction of Mr. Mill Stephenson.

To suit the convenience of the tenant, Mr. Lush, the operations of 1902 were chiefly confined to a narrow and irregularly shaped field of some 4 acres in the south-east quarter of the town, adjoining and lying west and south of the parish churchyard, but we were also able to extend our excavations into the pasture on the west.

The area of the churchyard field in its northern half is a gentle slope southwards, but it then rapidly descends, and its southern end is only slightly raised above the level of a small brook which rises in the south-east corner of the pasture.

The first thing undertaken was the laying open again of the long wall running north and south, which was discovered in 1890, and enclosed the two

temples partly underlying the churchyard. This served as a limit to our work eastwards and as a base line for the purposes of our plan.

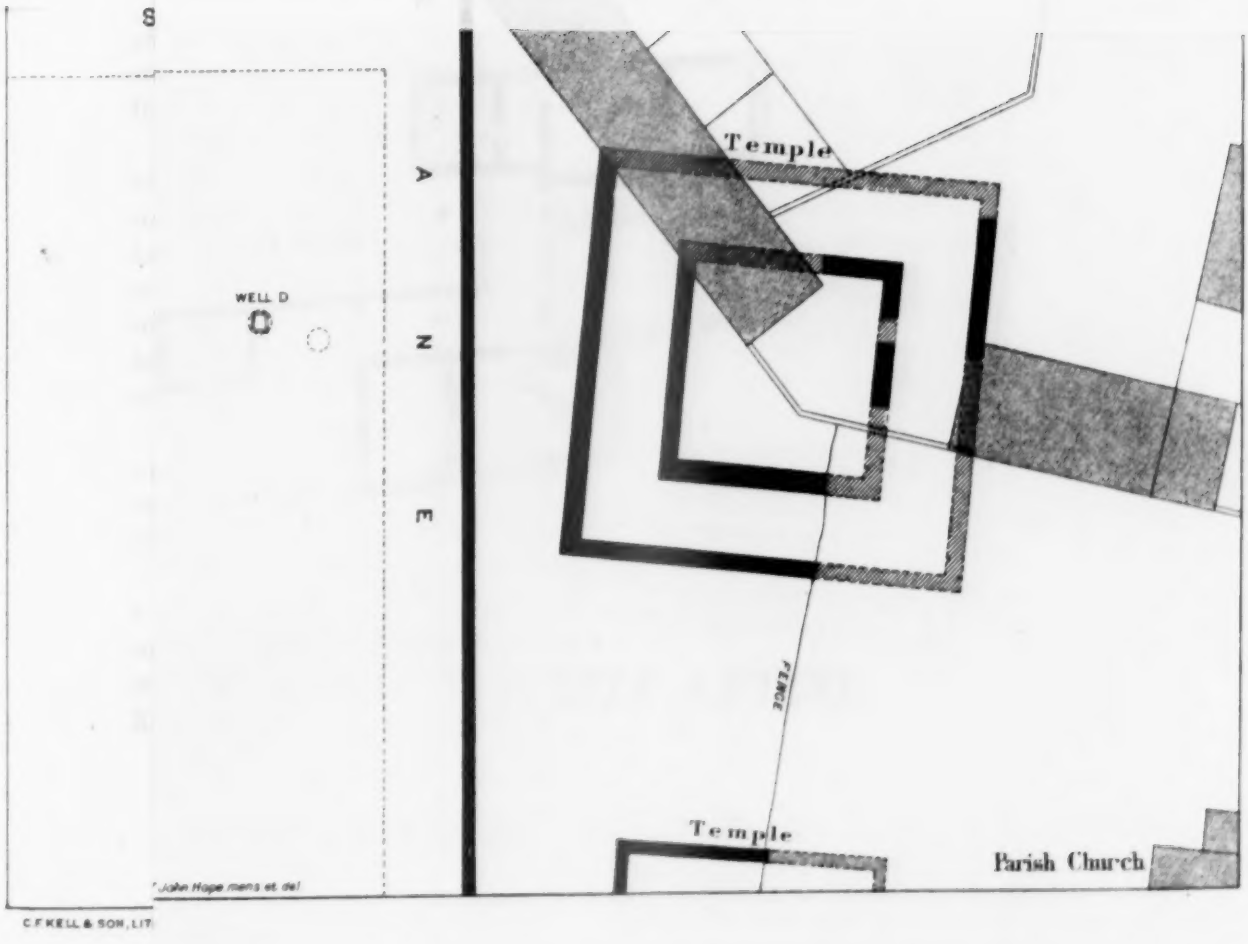
In 1890 this wall was traced southwards until it curved round to the east and passed under the churchyard, where of course it could not be followed (see plan, Plate XXXII.). It was also traced northwards as far as the farm buildings. Last year it happened that the large barn which stands athwart its line was empty, so advantage was taken of the fact to trace the wall to its northern extremity. It was followed right through the barn, and into the modern road crossing the site. It was picked up again on the opposite side, and continued into the field beyond. Here it was found to curve round to the east, as it does at its southern end, but more sharply (see plan, Plate XXVIII.). It will be seen from the town plan[a] that it points directly for the southern side of the east gate, and therefore forms the boundary of the main street that traversed the town. This street extended in a straight line from the west gate, past *Insulæ* XI., X., IX., I., XXI., and XXVII., but our discovery of last year suggests that it was then so deflected as to pass out straight through the east gate, at right angles to the section of the wall in which the gate is set.

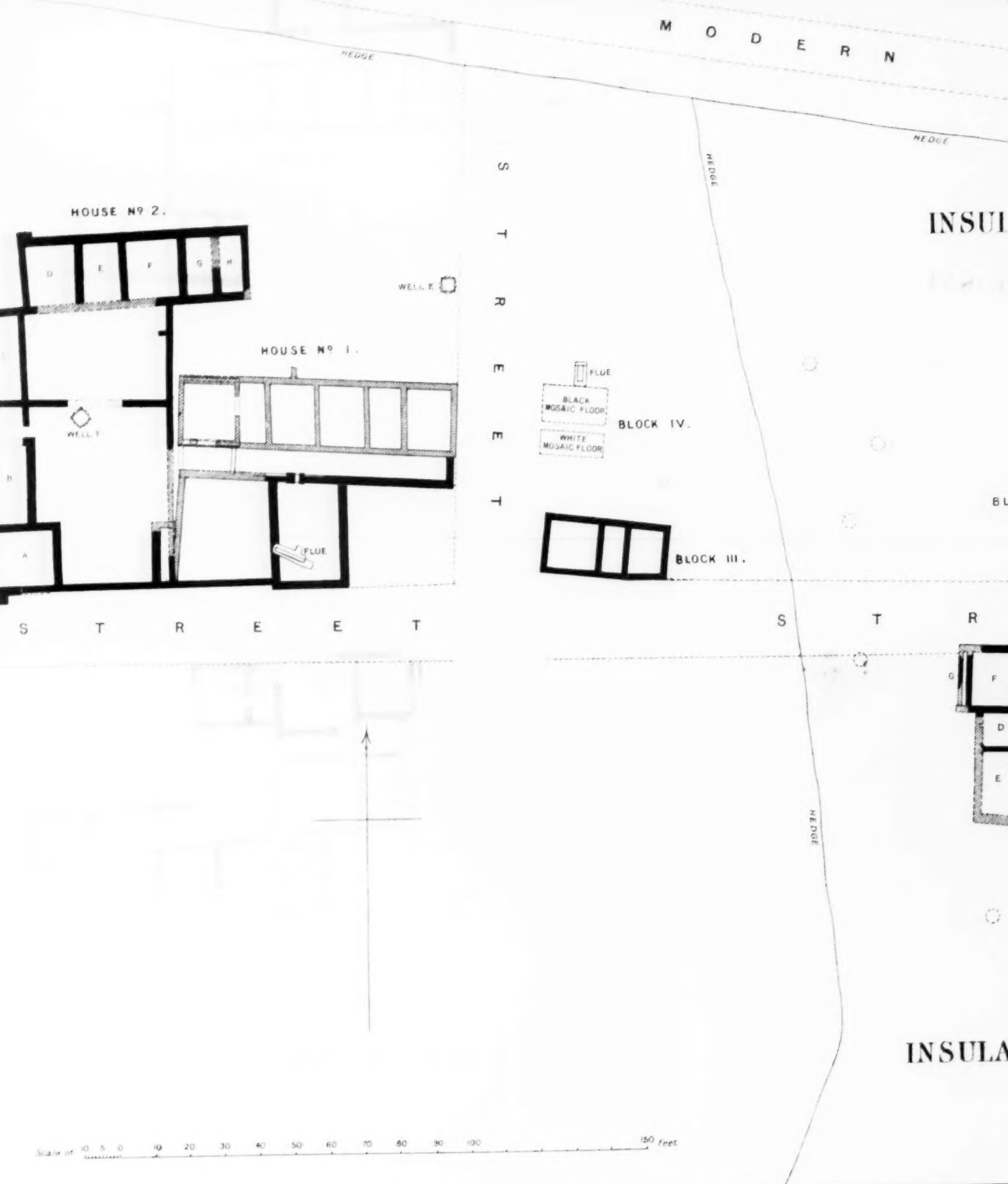
The *insula* in which the temples stood has been numbered XXX. Beside the temples, it contained within the rounded north extremity a singular little building (Block I. Plate XXVIII.). This consisted of an oblong chamber, 21½ feet long and 12 feet wide, with an apse on its broad side towards the west. In continuation of the south end was a sleeper wall extending westwards as far as the enclosure wall. Further to the east are two other walls, also 12 feet apart, running southwards from the enclosing wall, but these apparently belonged to another building (Block II.), and had no connection with the apsidal chamber, which is complete in itself. What was the use of this building it is difficult to say, and nothing was found in or about it to give a clue.

The length of the building (Block II.) to the east of the apsidal chamber could not be ascertained, owing to the walls having been broken away on nearing the fence. The trenches were, however, continued southward, and brought to light another wall running east and west. This returned at its west end, and as will be seen from the plan formed the north side of a building or enclosure (Block III.), the south wall of which was uncovered in the farmyard in 1893.[b]

[a] Fig. 1, at end of Paper.

[b] *Archæologia*, liv. 237.

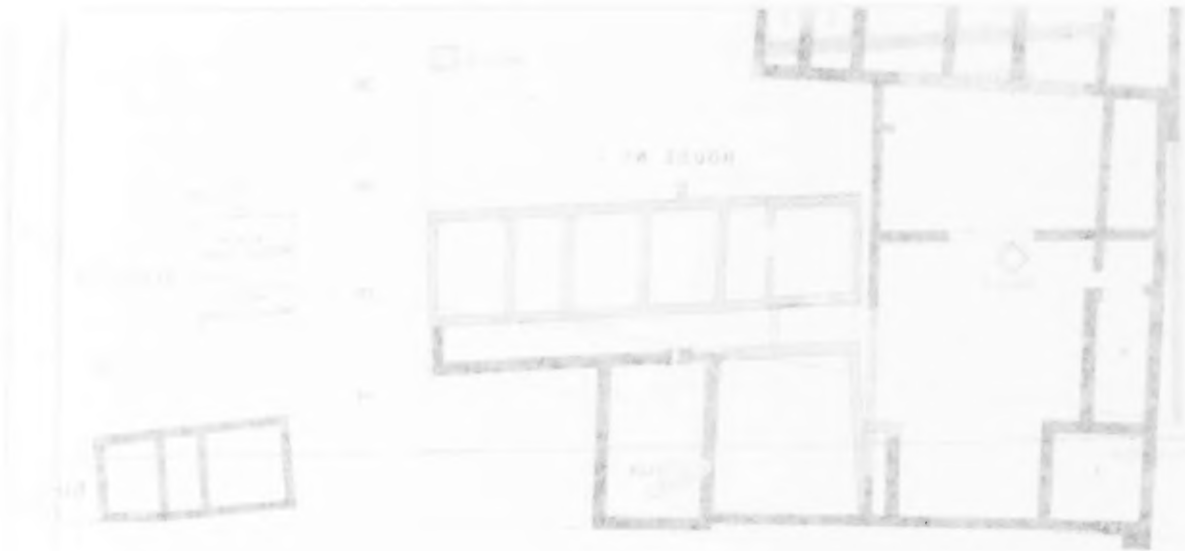

S
WELL D
A N E
Temple
FENCE
Temple
Parish Church
John Hope mens et del
C.F.KELL & SON, LIT.



SILCHESTER— NORTHERN PART

Published by the Society of Ar

T OF AREA EXCAVATED IN 1902.



This enclosure was 43 feet wide, but its east end lies under the road and has not yet been found.

The two temples were fully described in our report for 1890.[a]

The buildings of which traces have been discovered in the field adjoining the church are eleven in number.

The northernmost (House No. 1) was a small house, L-shaped in plan, which abutted on a street or lane 14 feet wide bounding the west side of *Insula* XXX. The northern wing stood east and west, and consisted of a number of chambers (A—E) with a corridor (G) 9 feet wide on the south. The western end of the corridor has been cut off to form another chamber (F), while its eastern end was expanded to 14 feet in width to form a hall or lobby (H), which probably contained the main entrance. The southern wing, which included this hall, extended southwards from the other along the street and consisted of two chambers (I, J). From its length, 37 feet, the larger of these was most likely subdivided by wooden partitions. The north end of the house was 81½ feet long, and its frontage to the street 90 feet, but there were some indications of a slight extension northwards. In none of the divisions of the house were any traces of the floors met with.

Immediately to the south of the west end of House No. 1 there were laid bare the traces of a building (Block I.), which may have belonged to it. It consisted of a row of at least three chambers, but the remains were too fragmentary for anything further to be made out. Through the sinking of parts of its floor into a pit we are able to say that the middle chamber had been paved with coarse red mosaic. Near the southern margin of the courtyard between these two buildings was a well (C) 18 feet deep, with a wooden tub at the bottom as a lining.

To the west of Block I. and parallel with it at a distance of about 10 feet were the gravel foundations of an oblong enclosure or building (Block II.), standing north and south, measuring internally 44 feet by 16 feet. Nothing was found in or about it to suggest its use or how it was paved.

The three buildings just described seem to have stood on the north side of a street running east and west, and extending from the wall of the temple enclosure to the chief entrance into the *forum*. The northern limit of the *insula* in which the buildings stood has not yet been fixed, but we have numbered it XXIX.

[a] *Archæologia*, lii. 745-749.

The *insula* to the south (No. XXXI.) is also at present only partly explored, but we have uncovered at least two buildings in it.

The largest of these stood immediately south of Block II. (*Insula* XXIX.), and was a house (House No. 1) with its north front along the street, which was here 18 feet wide.

The house consisted of a northern and a southern wing, at right angles to each other. (See plan, Plate XXVIII.) The northern wing primarily consisted of two large rooms (A, C), with an intervening passage (B), and flanked on each side by a corridor. As was so often the case the west corridor has been subdivided (D, E), and its north end finally replaced by a larger room (F), with a latrine (G) on the west. The north end of the eastern corridor (H) has been similarly encroached upon by a winter room (J) and ante-room (I) extending eastwards from chamber (A).

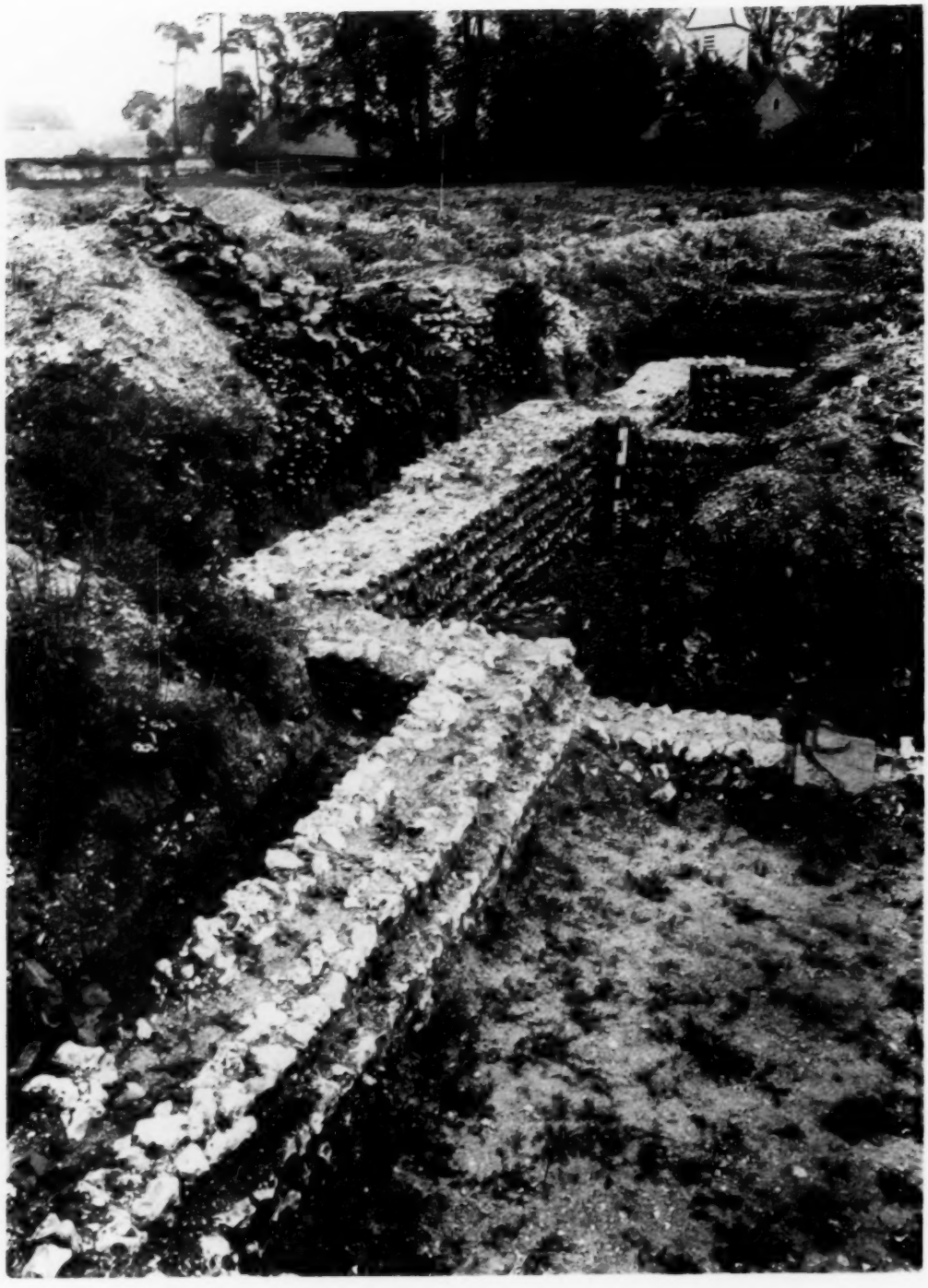
The position of the ante-room with regard to the rest of the house suggests that the main entrance from the street opened into it, but the difficult point to understand is how it could serve even as an ante-room, when it also contained the stokehole of the hypocaust of the winter room (J) adjoining. This hypocaust was of the usual channelled variety and supported a floor of *opus signinum*, part of which remained in place. The doorway of this winter room must have been in the north-west corner, opposite another doorway from the ante-room into chamber A.

The southern wing of the house stands east and west, with the main corridor (H) returned along its north side. It only partly overlapped the other part of the house, and consisted of two large rooms (K, L), each originally furnished with a hypocaust, worked from a stokehole at the east end of the range. At some later period in the existence of the house, perhaps after the northern winter room was built, both hypocausts were completely cleared away, and the rooms put to other uses. The westernmost (K) was partly occupied by a large boiling furnace, consisting of a rectangular chamber, apparently fitted with square *pilæ* to support the vat or copper, and heated from a long brick flue or stokehole on the east (Plate XXIX.). The apparently additional flues at the sides were perhaps only the supports for a vessel of greater width than the furnace chamber. What may have been a woodshed (M) stood a little to the east of the rooms just noticed, at the end of a continuation of the north wall of the corridor. A little further east was a wood-lined well (O), 17 feet deep.

Some little distance to the south of the house just described were the scanty

SILCHESTER.—FURNACE IN HOUSE No. I., INSULA XXXI.

Published by the Society of Antiquaries of London, 1903.



SECTILE-WALL WITH SOCKET FOR BEAM IN HOUSE No. 1, INSULA XXXII.

traces of another (? House No. 2). These traces include the remains of a winter room warmed by a pillared hypocaust, and part of a range of chambers to the east with a return southwards. Close to the north-east corner of these remains was a wood-lined well (B), 18 feet deep. There are some reasons for assuming that immediately to the south of the building just described there lay another street, running east and west past the southern border of *Insula* XXX. No positive traces of it beyond a bed of gravel were found, but the arrangement of the building next to be described is very suggestive of it.

This building, which may be called House No. 1 of *Insula* XXXII., consisted of a fairly symmetrical block, standing north and south (see plan, Plate XXXII.); but the north end, that towards the street, forms a slight angle with the rest of the house, and has apparently been rebuilt. It seems, then, that we have here another instance of a house that was erected before the town was finally laid out, and had to be altered to suit the new lines of roadway. Owing to the position of this house on the edge of a slope its northern end was built into the hill, and was found standing to a height of about $3\frac{1}{2}$ feet. For the same reason it was built of greater thickness than usual. The house consisted of a central range of chambers (A, B) between a narrow corridor (C) on the east and a wider one (D, E), which was subdivided, on the west. The subdividing walls are so few that the other divisions must have been wooden partitions. That wood was actually used in the construction of the building, probably in all of it from a few feet above ground, is shown in an interesting way by the socket or bed of a longitudinal beam in the north wall of the western division of the house. (Plate XXX.) The room (D) of which this wall forms the north end presented other features of interest. Built into its east side was a block of brickwork with the remains of a hearth against it, as if for an internal fireplace. Imbedded in the ground at the south end of the room were four earthenware pots, one of which was covered with an octagonal tile, and another with a thin piece of stone. Pots similarly placed have been found in other houses at Silchester, but their object is still a matter of dispute. To the south of the room under notice a quantity of loose red *tessera* was found, and these are the only indications as to how any part of the house was paved. Mr. Lyell has called my attention to the large amount of charcoal overlying the interior of this house at the floor level. Seeing that so much of the construction was wood, it is possible that the building was destroyed by fire.

A short distance to the east of this house were laid open the remains of another (House No. 2) of about the same size, and not unlike it in plan.

It consisted of a central row of chambers (*a*, *b*) with a narrow corridor (*c*) on the west, and a wider one (*d*) on the east, with a transverse row of two chambers (*e*, *f*) on the south. The corridor (*c*) was apparently little else than a wooden pentice, but there is of course nothing to show how far it was closed against the weather. At its north end are the remains of a return passage (*g*) running westwards. The central row of chambers was probably further subdivided than by the cross wall found by timber partitions. Of the eastern adjunct (*d*) nothing could be traced except a patch of coarse red tessellation at its southern end. The room (*e*) south of it presented nothing remarkable, but the large winter room (*f*) that completed this end of the house exhibited several features of interest. First its size should be noticed, it being 27 feet long and 20 feet wide. The hypocaust that warmed it was of the composite class, with an oblong chamber in the middle filled with octagonal *pilæ*, and radiating flues to the corners and side walls. (Plate XXXI.) The *pilæ* were twenty-four in number, in four rows of six each, and unusually close together. The fact of their being built up of octagonal tiles is noteworthy, for though tiles of this shape have repeatedly turned up singly, they have only rarely been found at Silchester forming *pilæ*. The hypocaust was worked by a stokehole on its north side, in the southernmost of the main row of chambers. From the remains of older foundations which traverse the hypocaust, it is evident that the southern part of the house consisted originally of three chambers of nearly equal dimensions, but the two westernmost were eventually thrown into one and converted into a winter room warmed by the hypocaust. Between the two houses just described and about equi-distance from both, there was uncovered a somewhat irregular patch of coarse red tessellation (Block I.). Closer examination showed that it had apparently formed the floor of a wooden building about 11 feet square, subdivided by a partition 8 inches thick. It is rather too far from House No. 2 to have ever formed part of it, though the close coincidence of its main lines of direction with those of the house suggest that it was connected with it in some way, despite the absence of any traces of such connection.

Immediately to the east of House No. 2 are the foundations of two buildings, the like of which have not occurred before at Silchester. That to the north (Block H.) was a long and narrow structure, measuring internally 58 feet by 6 feet, and built across the slope of the hill so as to maintain a fairly level floor. The west side and the two ends were only 15 inches thick and for the most part built of tiles, but the east side formed an open arcade or portico of six bays. Of the

CHICHESTER. HYPOCAUST IN HOUSE No. 2, INSULA XXXII.

character of this portico we have no evidence, inasmuch as only the bases of the supports remained, and these were merely oblong masses of tile; we are also equally in the dark as to the use to which the building was put. Nothing of its floor remained and nothing was found in or about it.

The other building (Block III.) was of totally different plan and character. It consisted of a semicircular wall of flint rubble, with an internal diameter of 15 feet, with a short return on either side along the diameter, as if the open side, which faced up the slope towards the north-east, were partly closed by an arch so as to form a kind of alcove.

From the fact that both buildings face uphill and turn their backs upon House No. 2, it looks as if they stood in the grounds of House No. 3, which was excavated in 1896,[a] and now underlies the recent extension of the parish churchyard.

A wood-lined well (A) 17 feet deep to the west of Block III. probably belonged to House No. 2.

South of the buildings described our trenches did not reveal any further foundations, and owing to the lowness of this part of the site it was probably open or garden ground.

The little stream which served as the western boundary of our season's work now passes out of the town through a breach in the wall. As, however, there could have been no such breach here originally, the sides of it were examined in the hope of bringing to light the remains of an archway or some such proper outlet. But the result was only partly successful, for although we found on the east side remains of the vertical jamb of an opening, on the west it had been destroyed, and what was left on the east did not extend high enough to show traces of an arch. We were able, however, to determine that this section of the wall, like that to the west, which also traverses low marshy ground, was built upon piles, and at the base of the opening through the wall there was laid across it a stout baulk of oak about 9 inches square, perhaps part of a sluice gate.

About 100 feet to the east of the breach through which the brook flows out, the line of the town wall, which here bounds the site, makes a small angle. As these angles are usually marked by one of the inner buttress-like projections which we think formed the bases of towers set at intervals astride the wall, search was made for one at this point. The result was satisfactory, inasmuch as

[a] *Archaeologia*, lv. 428, 429.

both the turret base and the external plinth with part of the facing of the wall were found, but the turret itself had been displaced over 3 feet outwards by a settlement, and the wall adjoining it on the west was also forced out of line by the growth of a huge tree. Another turret was disclosed about 200 feet to the north when the brushwood was cleared from the face of the portion of the wall that bounded the extension of the churchyard.

The excavations in the pasture to the east of the churchyard field were of a somewhat limited character. An area of about $\frac{5}{8}$ acre occupying the north-east corner was enclosed by hurdles, and the ground trenched in the usual way. We first brought to light the foundations of a small building (Block III.); it stood east and west on the edge of the street bounding *Insula* XXIX. on the south, and consisted at first of two small rooms, to which a third had been added later at the east end. These perhaps formed a row of shops.

A little to the north were the remains of two floors of coarse mosaic, the one white, the other black, divided by an interval of two feet and forming roughly a square of 18 feet (Block IV.). There were no remains of walls, and we can therefore only assume that the building to which the floors belonged was entirely of wooden construction. The white pavement, which was the southernmost, was about $6\frac{1}{2}$ feet wide, but the black floor had a breadth of 10 feet. Against the northern margin of the block were the well-preserved remains of one of the usual long flues or hearths.

Both the structures just described clearly formed part of *Insula* XXIX., and were apparently separated by a narrow line or street from other remains further west.

These remains occupied most of the western side of our working area, and consisted of two houses, bordering on and extending northwards from the street on the south. As will be seen from the general plan,[a] they form part of *Insula* XXVII., the northern margin of which was excavated in 1901.

House No. 1, which is unquestionably the earlier, consisted originally of a series of six chambers or divisons, forming a block about 80 feet long, standing east and west, with a corridor on the south. Nothing was found to show how the different parts of the house had been floored. The house stood back from the later line of street, and not quite parallel with it, and probably had an upper story. There was subsequently added to it a large winter room

[a] Fig. 1, at end of Paper.

projecting southwards from the middle of the corridor as far as the street, with which it was also built at right angles. The stokehole of the hypocaust was in the corridor, an arrangement which is somewhat unusual, but it was found in two other of the houses uncovered in 1902. At a later period the house seems to have been pulled down, with the exception of the winter room, and perhaps part of the adjoining corridor. The hypocaust was cleared away, and its area converted into a dyer's workshop, as is shown by the remains of one of the long flues which has been built within it. To the same date as these alterations we may perhaps assign the square chamber which has been built upon the foundations of the westernmost room of the destroyed house.

Some 27 feet north of the north-east corner of the house was a wood-lined well (E), 8 feet deep.

House No. 2 may be claimed as belonging to the courtyard type; the two divisions or wings of which it consisted being placed at right angles on two sides of a court. The one wing of the house extends along the west side of the court, and consisted of a chamber (A), perhaps a porter's lodge, some 15 feet square, with a corridor (B C) running northwards from it. This corridor seems to have been of more than one date, and was apparently subdivided into several small rooms. The other wing of the house extends along and beyond the north end of the court, and consisted of a row of five chambers or divisions (D—H), one of which may have contained a staircase to an upper floor. There were no definite remains of any corridor communicating with these chambers, but the whole of the foundations were very poorly preserved. The courtyard had been subdivided by a wall into a larger outer and a smaller inner court. In the former was a wood-lined well (F), 10 feet deep. On the south the court was closed towards the street by a wall, which also extended as far as the added chamber of House No. 1. From the west side of House No. 2 here extends northward a wall of earlier date, which was followed up to the hedge of the present roadway. It is so nearly in line with the return angle of a building excavated in 1901, on the other side of the road, that they even probably connected, but owing to the fragmentary nature of the northern end this cannot be proved.

It will be seen from the town plan* that the excavations of 1902 have

* Fig. 1, at end of Paper.

added materially to our knowledge. The six complete houses uncovered are all of interest on account of their small size, and of the other five buildings two at any rate are of a new type. It is unfortunate that the topographical limits to the excavations compelled us to deal with parts only of *insulæ*, but we hope to be able to complete some of them during the forthcoming season.

The circumscribed area of last year's operations had a further unfortunate result, that the comparatively small amount of open ground between the buildings contained but few pits or wells. The miscellaneous antiquities found are consequently so few in number that the Committee has not thought it worth while this year to have an exhibition of them.

But few traces were met with of mosaic pavements, and those even of the coarsest description only. The few pieces of painted wall-plaster also do not call for remark.

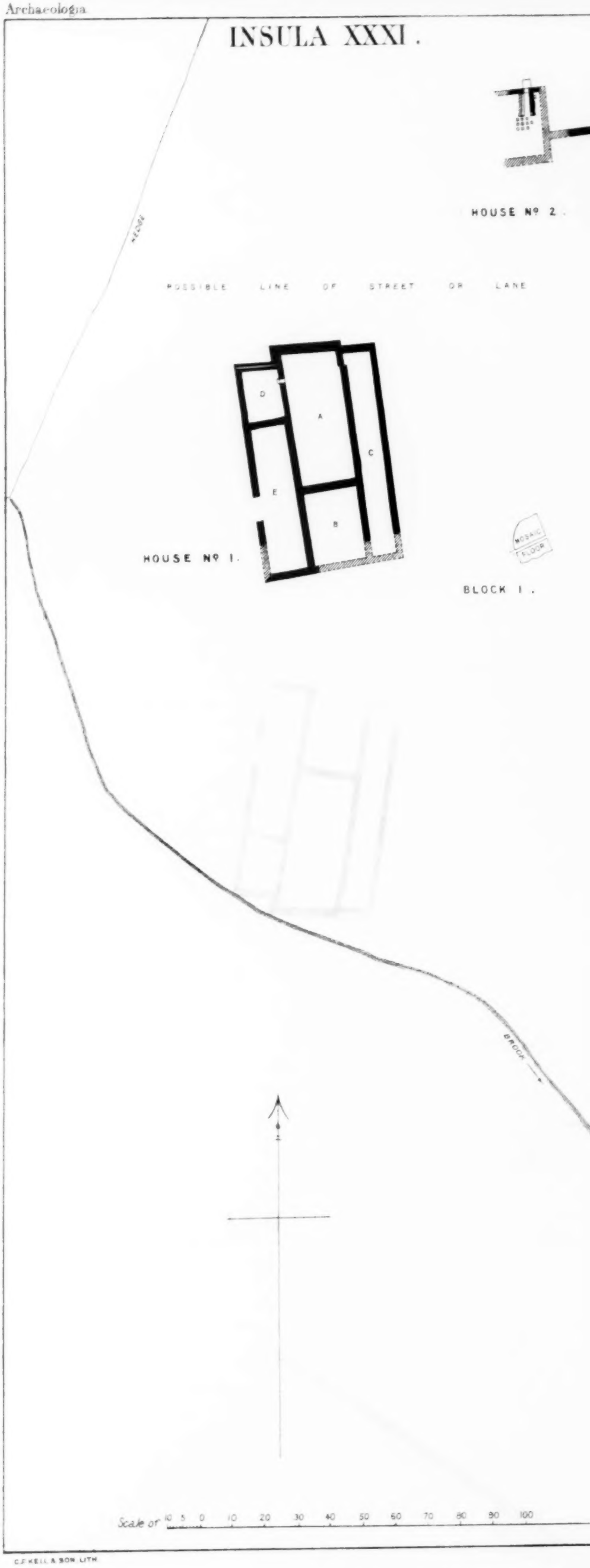
Used up as building material in the large hypocaust of House No. 2 in *Insula* XXXII. was a fragment of an inscription. It was cut on a slab of sandstone at least 6 inches thick, and the letters were 5 inches high and of good early character. An **A** in one line and in the next the letters **M F** are all that remain, and these are imperfect. The complete inscription may originally have formed part of one of the adjacent temples. If so, it would point to the destruction or rebuilding of the temple before the erection of the house in question.

Close to House No. 1, *Insula* XXXII., was found a fragment of an Attic base of good character, with part of an attached shaft, which must have been about $8\frac{1}{2}$ inches in diameter. Possibly this, too, came from one or other of the temples. The same remark applies to some portions of Purbeck marble mouldings and wall linings.

Of the other objects discovered the most noteworthy is the half of an upper quernstone of Andernach lava. Its diameter was 28 inches, and there still remain in the upper surface the iron staples of the handles by which it was worked.

The bronze objects include two good brooches, a toy axe, a bell, a curious torque of debased silver, and a number of needles and pins. Another pin is of silver, as is also a plain ring with traces of gilding.

Among other metallic objects are a rod of solder, a three-legged candlestick of iron, and a few keys, etc. of the same metal.



...man city at Silchester, Hants, in 1902.

The six complete houses uncovered are ...mall size, and of the other five buildings ... It is unfortunate that the topographical ...s to deal with parts only of *insulæ*, but ... some of them during the forthcoming ...

...ear's operations had a further unfortunate ...ount of open ground between the buildings ... The miscellaneous antiquities found are ...he Committee has not thought it worth ... them.

...f mosaic pavements, and those even of ...ew pieces of painted wall-plaster also do ...

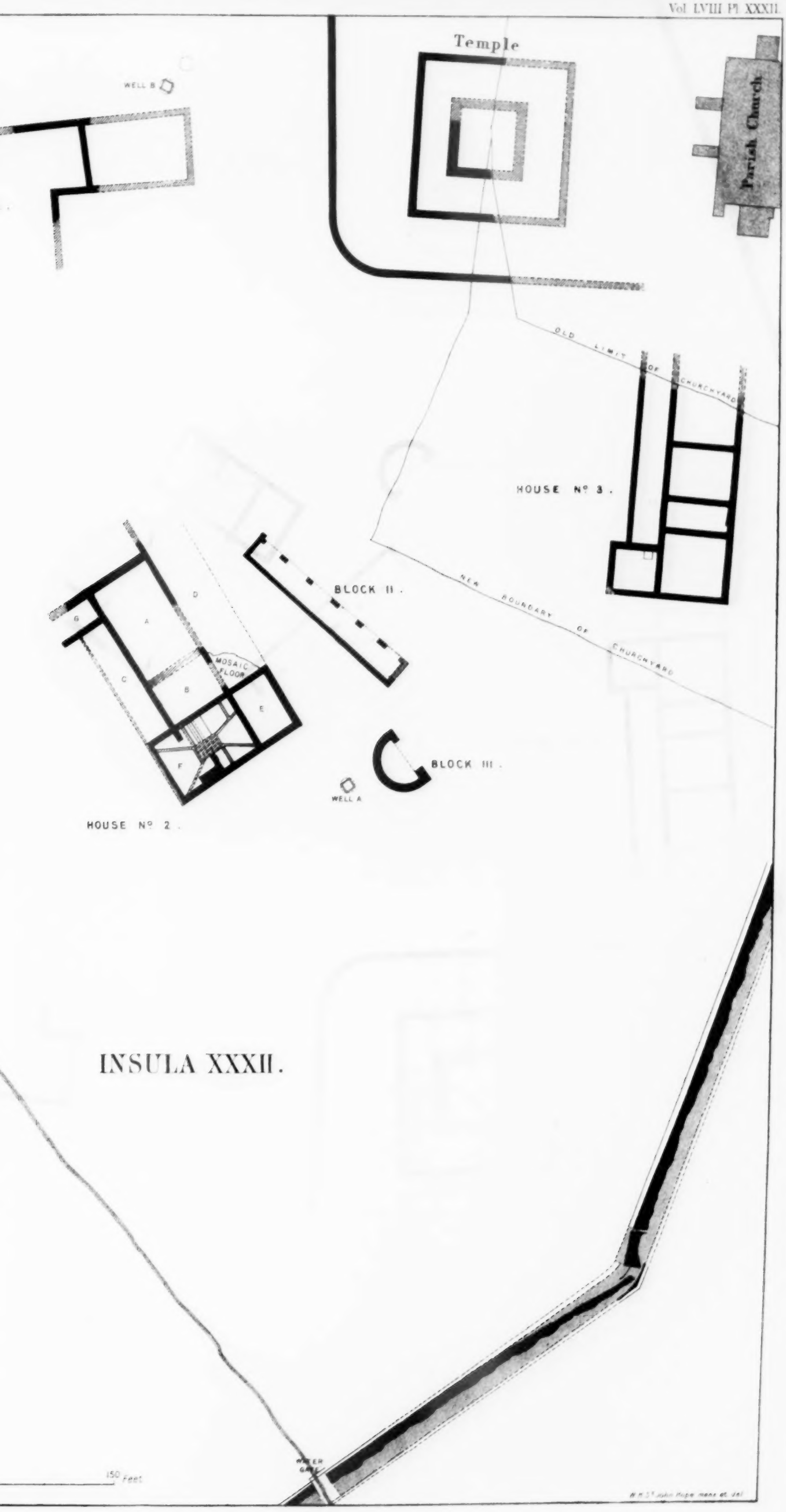
... the large hypocaust of House No. 2 in ...scription. It was cut on a slab of sandstone ...s were 5 inches high and of good early ... the next the letters M F are all that ... The complete inscription may originally ...ent temples. If so, it would point to the ...le before the erection of the house in ...

...II., was found a fragment of an Attic base ...ached shaft, which must have been about ...on, came from one or other of the temples. ...ons of Purbeck marble mouldings and wall ...

... most noteworthy is the half of an upper ... diameter was 28 inches, and there still ... staples of the handles by which it was ...

...good brooches, a toy axe, a bell, a curious ... of needles and pins. Another pin is of ...s of gilding.

... a rod of solder, a three-legged candlestick ...e metal.



UTHERN PART OF AREA EXCAVATED IN 1902.

The objects in bone consist almost entirely of the usual assortment of pins and needles and small flat counters.

Of shale there are parts of two large trenchers and some fragments of bracelets.

The fragments of glass do not call for remark.

The amount of pottery found was insignificant when compared with the large number of vessels recovered in other years. A mutilated figure of Venus, modelled in pipeclay, was found in Pit V. at a depth of 4 feet.

Among the very few extraneous objects are a polished stone axe of the Neolithic period and an iron rowel spur of the time of the Civil War.

Coins were fairly numerous.

Of the wells, that marked A, in *Insula* XXXII., close to Block III., was 17 feet deep, and was lined for 11 feet from the bottom with oak boarding, forming a framework 3 feet square. The boards, of which there were seven rows, varied in width from 13 to 20 inches. Among other things found in this well was a fine specimen of a horse's skull, at a depth of 12 feet, skulls of sheep and oxen, a vessel of red-glazed ware, and a black pot.

Well B, in *Insula* XXXI., north of House No. 2, also had a wooden lining 2 feet 6 inches square, extending for $8\frac{1}{2}$ feet up. The boards of this were about a foot broad, and have been pronounced by Mr. Clement Reid to be of alder. A small wooden bucket, with iron handle and two bands of the same material, was found at the bottom, and also the handle of another bucket.

Well C, in *Insula* XXIX., close to the street, was lined with a wooden barrel 3 feet in diameter, formed of 19 staves, but it was in a very decayed condition.

Well D, in *Insula* XXXI., near House No. 1, was 17 feet deep, with a timber framing 3 feet square for 10 feet up. The boards were of oak. Among the finds were a jug of pottery, and a copper coin of Carausius (?) which was wedged in between two of the boards of the lining.

Well E, in the pasture, was only 8 feet deep, and lined to half-way up with a wooden framing 3 feet square. It contained much broken pottery.

Well F, also in the pasture, in the courtyard of House No. 2, was 10 feet deep, with a wood lining $2\frac{1}{2}$ feet square.

The numerous bones found in the wells and pits have been examined by Mr. E. T. Newton, who has kindly submitted the following note upon them:

"Many mammalian and other bones have been found during the Silchester

explorations of 1902. The greater number of these remains belong to Oxen, and most of them, including a portion of a skull and several lower jaws, together with limb-bones, are parts of animals of moderate size, which cannot be distinguished from some of our modern cattle (*Bos taurus*). There are, however, a few bones, including a frontal with horn-cores attached, which are referable to the long-faced Ox (*Bos taurus*, var. *longifrons*).

The Horse (*Equus caballus*) is represented by a skull and lower jaw ramus, evidently belonging to a fair-sized horse; certain limb-bones, however, are parts of a much smaller animal.

The Sheep (*Ovis aries*).—A nearly complete skull and half another, together with a lower jaw ramus, agree with similar parts of modern sheep; some limb-bones may likewise belong to sheep, but may possibly be parts of a goat.

The Goat (*Capra hircus*).—Some horn-cores and a piece of a young jaw with milk-teeth clearly belong to this species, and certain of the small ruminant limb-bones may be referable to this species.

The Red-deer (*Cervus elaphus*).—A few pieces of antlers represent this animal; one of these retaining the "burr" is part of a shed antler; other pieces are interesting on account of their having been sawn across.

The Roe-buck (*Capreolus capræa*).—A well-preserved metatarsal bone is the only part of this animal yet found.

The Pig (*Sus scrofa*).—A piece of a lower jaw and two fibulæ are referable to this species; as well as a large tusk apparently belonging to a Wild Boar.

The Dog (*Canis familiaris*).—Two or three skulls and a number of limb-bones indicate the presence of at least three different kinds of dogs, ranging in size from a terrier to a stag-hound. One ulna found in the floor of a house is much bent, and must have belonged to a bow-legged animal, suggesting the form of some bull-dogs or perhaps an otter-dog.

The smaller mammals are represented by a few bones of the Field-mouse (*Mus sylvaticus*), the Field-vole (*Microtus agrestis*), the Bank-vole (*Evotomys glareolus*) and the Shrew (*Sorex vulgaris*).

Very few birds' bones have been found this year; there are some, however, belonging to a small fowl, about the size of a game bird, and the strong spur upon one metatarsal bone seems to favour this idea. Bones of a Wild-goose (*Anser*

cinerius?) and a few of those of a Woodcock (*Scolopax rusticula*) are also among the scanty avian remains obtained during the 1902 explorations.

The only Fish that we were able to record for 1901 was the Eel; but this year we have evidence of three other fishes as well as the Eel.

The freshwater Stickleback (*Gasterosteus aculeatus*) is represented by two of the characteristic ventral spines and one of the ornamented pelvic bones. The recovery of these minute specimens bears testimony to the care with which Mr. Lyell has searched for the smaller organisms. The other two fishes are marine forms, a Sea Bream, several scales of which have been found at a depth of about eight feet from the Roman surface, and a Herring (probably *Clupea harengus*), a small but characteristic bone of the skull having been preserved.

The presence of these remains of marine fishes so far from the sea coast opens up some interesting questions. May it be taken for granted that they had been used as food? The possibility of their having been brought by birds at once occurs to our minds. But the Sea Bream scales were found in "Well C," and this seems to indicate that they were domestic refuse, and most likely therefore had been used as human food. The fragment of Herring also was found, with a few remains of Eels, Mice, and Birds, in a small and irregular hole under the foundation of a house in the grass field, and may therefore have been part of a refuse heap subsequently built over."

The search for remains of plants, etc. in the filling in of the wells and pits has again been followed up with exemplary care and patience by Mr. A. H. Lyell, and the results have been examined by Mr. Clement Reid, F.R.S., who has most kindly furnished us with the following report:

"The material collected during 1902 by Mr. A. H. Lyell from the rubbish pits and old wells has proved of more botanical interest than that obtained in 1901. It has yielded seeds of various plants for which the mediæval herbals were till now the earliest records. Most of these additions to the flora of Roman Britain are well-known weeds of cultivation, which may have been introduced in Roman times, or may date back to the first introduction of cereals and vegetables during the Bronze and Neolithic periods. At present scarcely any material undoubtedly belonging to these two periods has been examined for plants, and the species known are very few; but ultimately

we shall be able to fix the date of the introduction of our various cultivated plants and weeds of cultivation, and then we can use seeds, as we do coins or pottery, for fixing the date of ruins or camps of unknown age. Before this can be done it is necessary, however, that we should obtain a good knowledge of the flora of each successive period, from material collected and dated in the same careful way that the Roman material is now being gathered up and preserved by the Silchester Committee.

The additions to the flora of Roman Silchester obtained last season are twenty-four in number, besides seeds of several plants not yet determined:

Ranunculus acris, *L.* (Meadow Buttercup).
Ranunculus auricomus, *L.* (Goldielocks).
Apium nodiflorum, *Reichb.*
Daucus Carota, *L.* (Carrot).
Caucalis Anthriscus, *Huds.*
Galium verum, *L.*, Galium palustre, *L.*, Galium Aparine, *L.* (Bedstraws).
Cnicus arvensis, *Hoffm.* (Thistle).
Serratula tinctoria, *L.* (Saw-wort).
Centaurea nigra, *L.* (Knapweed).
Lapsana communis, *L.* (Nipplewort).
Taraxacum officinale, *Web.* (Dandelion).
Sonchus arvensis, *L.* (Corn Sowthistle).
Lithospermum arvense, *L.* (Gromwell).
Solanum nigrum, *L.* (Black Nightshade).
Calamintha arvensis, *Lam.* (Calamint).
Ajuga reptans, *L.* (Bugle).
Chenopodium hybridum, *L.*, Chenopodium album, *L.* (Goosefoot).
Polygonum lapathifolium, *L.*
Rumex viridis, *Sibth.* (Dock).
Buxus sempervirens, *L.* (Box).
Carex dioica, *L.* (Sedge).

One of these plants is of considerable interest, for it throws light on a question that has much exercised the botanist. The box tree is of such partial occurrence in Britain, being only found wild in a few localities in the south, that it has always been a matter of doubt whether the tree could be considered native. If not native, at what date was it introduced? Box-clippings have now been found in Pit XIII. (1902), and this shows that the tree certainly grew in Britain as far back as Roman times. But whether the box was indigenous or cultivated at Silchester there is nothing definite to show, for it occurs as clippings only. The fashion of clipping the box into fantastic shapes was well known in Roman times, such trees being among the adornments of Pliny's villa at Tusculum. At Silchester, however, the box clippings are associated with various weeds and the untidy elder, not with either garden plants or shade trees. This perhaps suggests that the clippings belonged to withered garlands made from wild trees, and were not gardener's waste.

The discovery of seeds of fig and grape in several fresh pits makes it increasingly probable that they were cultivated in Britain, and were not the mere remains of imported dried fruits. Neither the fig nor the vine is difficult to cultivate in the south of England, and the non-occurrence of other dry fruits, such as the almond, which do not ripen in Britain, suggests that only home-grown fruits were obtainable. If the wood of the fig and vine should turn up, it will settle the question, for neither of these woods is of any value, and they would not be imported. The occurrence of masses of grape seeds and skins, such as would form the refuse of a wine-press, would be conclusive; but at present the seeds occur sparingly, suggesting grapes or raisins for eating, not for wine. The question is a difficult one, for on the one hand we find imported wine-casks made of silver-fir and strongly suggesting a trade with Bordeaux; on the other we find seeds of grape, suggesting that the vine was grown in Britain.

In a former report I pointed to the extraordinary abundance of seeds of poisonous plants in the old wells in Silchester as a suspicious circumstance. It now appears to be perfectly explicable without casting any slur on the inhabitants. Berries of *Atropa Belladonna* were freely used as a cosmetic; hence the constant occurrence of seeds of the deadly nightshade in the house-refuse. In all probability this exceedingly dangerous plant was not allowed to grow in the town, or within reach of children or cattle; but was brought from a distance. The woody nightshade and black nightshade are both plants of common occurrence in gravelly wastes and among old buildings; their occurrence, associated with the elder, overhanging dilapidated wells, is not surprising. The other poisonous plant, the hemlock, grows and seeds so freely among the tall sedges used for thatching, that it would be surprising if a good many seeds of it were not entangled in the thatch.

A comparison of the cultivated plants with those grown in Italy raises various questions which at present we cannot answer. The pear, the peach, the apricot, and the chestnut are all missing, and the plums do not belong to the numerous good varieties known to the Romans. The grape and fig are the only fruits which they seem to have introduced into Britain. It is curious to find in a collection of seeds from the Roman layer in Tooley Street, recently sent to me by Mr. Kennard, exactly the same association. There also the fig and grape occur with no better fruit than the damson, and are associated with the same weeds of cultivation. In each locality there is the same singular absence of some of our commonest weeds, such as the groundsel, the daisy, and the white dead-nettle. It would now be

interesting to examine the plants from a wealthy and fashionable town like Roman Bath, for there if anywhere we might expect to find the fruit eaten by the rich."

With these interesting remarks of Mr. Clement Reid our report may fitly conclude.

The accompanying block-plan (fig. 1) shows the progress made in the excavation of the site.

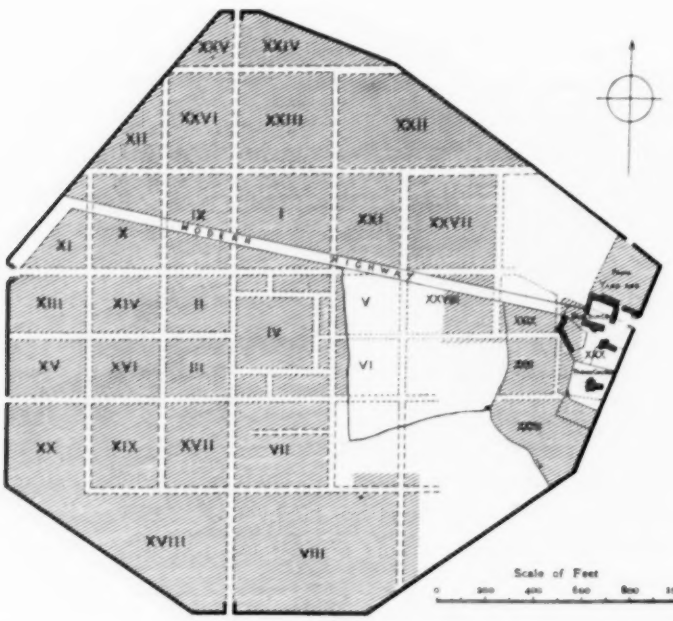


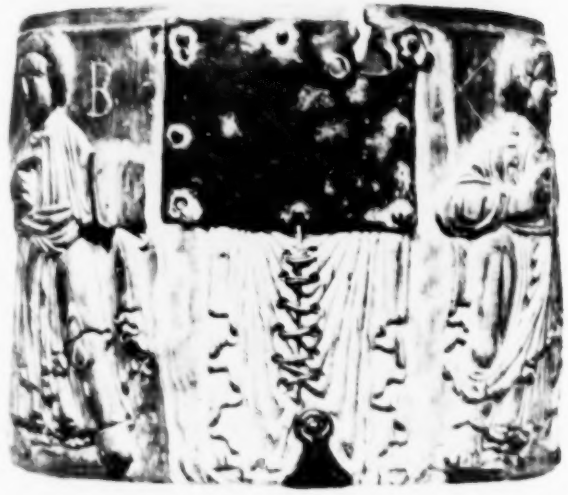
Fig. 1. Block-plan of Silchester, showing portions excavated down to the end of 1902.

1.

2.

3.

4.



CARVED IVORY PYX IN THE BRITISH MUSEUM.

XIX.—*On a Carved Ivory Pyx in the British Museum.* By O. M. Dalton, *Esq.*, *M.A., F.S.A.*

Read 7th May, 1903.

The pyx illustrated in Plate XXXIII., and acquired by the British Museum in the present year, was formerly in the possession of the Reverend Walter Sneyd, of Keele Hall, where it had been preserved for about half a century. It was exhibited at the Art Treasures Exhibition at Manchester[a] in 1857 and again at South Kensington in 1862, has been figured, though imperfectly, by Garrucci[b] and Rohault de Fleury,[c] and cast for the series issued by the Arundel Society.

The subject represented is the Healing of the Demoniac (Matthew viii. 28, Mark v. 2, Luke viii. 27). In Plate XXXIII., figs. 1 and 2, Our Lord is seen followed by two disciples and confronted by the Demoniac, who, nude to the waist, has issued from a building with folding doors and high-pitched roof representing the tomb. Our Lord is beardless, with long hair, and both he and the disciples wear the tunic and pallium, though the garments are rendered in a manner suggesting that the artist did not quite understand the way in which they were worn. (See below.) Our Lord carries a long cross, and the disciple behind him a book. In fig. 3, representing the opposite side, are seen three figures similarly dressed, two beardless, one with moustache and beard; and in fig. 4 beneath the bronze plate of the fastening hangs a curtain, the crack down the centre having been

[a] J. B. Waring, *Art Treasures of the United Kingdom* (1858), 8.

[b] *Storia dell'Arte Cristiana*, vol. vi. plate 439, fig. 4. Garrucci erroneously describes the pyx as belonging to the cathedral church of Sens.

[c] *La Messe*, vol. v. plate 372, and p. 67b.

repaired by a piece of wire. The letter B on the left has been rudely cut in the space to the left of the lock in modern times. The pyx has a flat ivory bottom secured by four copper or bronze clamps identical in style with those found upon other objects of the kind, for instance on an example in the Basilewsky collection at St. Petersburg;[a] but it is possible that neither the bottom nor the clamps were originally made for this particular pyx, as there is a kind of sunk border or rebate running round the greater part of the circumference (see Plate XXXIII., figs. 1 and 3), which looks as if the lower edge had been fitted into a base with a raised rim. This peculiarity appears to be shared by the Basilewsky example to which reference has just been made. The lid and hinges are lost.

Fig. 1. Figure of Moses from the Alcuin Bible in the British Museum.

The Sneyd pyx belongs to the class of Christian antiquities which have derived both their name and form from the Roman box (*pyxis*), originally made of boxwood, but afterwards of other materials, especially ivory. The Roman ivory pyxis[b] was formed from a transverse section of an elephant's tusk, and had two principal uses; when fitted with a lid it served as a receptacle for jewels and other small objects of value, when without a lid as an *acerra* or box for the grains of incense thrown into the flames of the pagan altar. The Christian Church adopted the pyxis in both its forms, using the covered variety as a pyx, or sometimes as a reliquary, and the open form, though far less commonly, to contain the incense for the thurible. A certain number of these ivory boxes, ornamented with secular subjects, have come down to modern times, having generally owed their preservation to their inclusion in church treasuries; but the greater number are carved with distinctively Christian designs and were made for Christian use. These date from the period between the fourth and the seventh centuries, and were largely produced in Egypt, Syria, and Asia Minor, those parts of the Christian East to which so much of the best ivory work of the sixth century is ascribed.[c]

[a] A. Darcel, *La Collection Basilewsky*, plate ii.

[b] H. Graeven, in *Monuments et Mémoires publiés par l'Académie des Inscriptions et Belles-Lettres (Fondation Eugène Piot)*, vol. vi. (1900). "*Pyxide en os représentant la naissance d'Apollon et de Diane.*"

[c] A number of the pyxes still in existence are figured by Rohault de Fleury and Garrucci in the volumes cited above.

A glance at the Sneyd pyxis will suffice to convince the observer that although the general treatment of the subject is in accordance with early Christian ideas, the style of the drapery, the character of the figures, and certain details of costume and architecture are not those of the sixth or any earlier century. Critics have consequently experienced a difficulty in finding a satisfactory attribution. One decides in favour of Rome towards the middle of the eighth century;[a] another, with less precision, suggests Italy as the place of origin, and the period between the sixth and eighth century as the date;[b] others think of the East; others again, perplexed by so much incongruity, take refuge in the easy verdict of forgery. I venture to think that all these opinions are equally erroneous; that, as Mr. Scharf hints in his short description,[c] the pyx was made north of the Alps in the ninth or tenth century, and that it is one of those imitations of early Christian work comparatively frequent at that time, of which the Lorsch bookcover at South Kensington and the other remarkable bookcover in the Bodleian Library are notable examples in English collections.[d]

A nearer examination of the groups upon the sides of the pyx will reveal many points of resemblance with Carlovingian and early German manuscripts and ivory carvings. The squat figures with their large heads and prominent eyes have a certain family likeness to those of the so-called Alcuin Bible in the British Museum, written at Tours about the middle of the ninth century (fig. 1). Nor is the resemblance confined to a general similarity of type. If we examine the treatment of the extremities we shall find the broad feet with the line of equal toes and the long curiously retorted fingers, so familiar to students of Carlovingian manuscripts. Such fingers are especially characteristic, and have been remarked by more than one writer[e] on the art of the period. The apostles on the pyx,

[a] G. Stuhlfauth, *Die altchristliche Elfenbeinplastik*, 66. Stuhlfauth compares with the Sneyd pyx four panels in a collection in Paris, Garrucci, plate 448, 10-13. He states that the pyx originally came from Aachen.

[b] Westwood, *Fictile Ivories*, 274.

[c] In Waring's *Art Treasures*, cited above.

[d] For the Lorsch bookcover (Maskell, *Ivory Carvings*, plate opposite page 53) see H. Graeven in *Byzantinische Zeitschrift*, x. 1-22. The Bodleian bookcover (Westwood, *Fictile Ivories*, plate vi.) is especially interesting because the early Christian original of one of the plaques composing it is still in existence; see A. Haseloff in *Jahrbuch der koniglich preussischen Kunstsammlungen*, 1903, pp. 47ff. The imitation of early Christian pyxes in the West is not so frequent as that of panels or plaques; but there is an example at Reichenau executed at an even later date than that suggested for the Sneyd pyx. For this information I am indebted to Dr. Hans Graeven, Director of the Trier Museum.

[e] J. R. Rahn, *Das Psalterium Aureum von Sanct Gallen*, 36, "*auswärts geschweifte Finger.*"

though poorer in execution, are closely related in style to the St. John of a Rhenish ivory at Berlin (fig. 2). The treatment of the drapery, with its excessive multi-

Fig. 2. Figure of St. John from a plaque representing the Crucifixion in the Royal Museum at Berlin: attributed to the Middle Rhine, tenth-eleventh century.

After the reproduction on plate xii. of the *Beschreibung der Bildwerke der Christlichen Epoche: Die Elfenbeinbildwerke; Königliche Museen zu Berlin*, 1902.

Fig. 3. Ivory panel, ninth-tenth century, in the British Museum.

plication of folds suggestive of a school more familiar with caligraphic than plastic art, is equally prominent in the miniatures and ivories produced under the successors of Charles the Great. The execution in the present case is neither so painstaking nor so correct as in the Lorsch bookcover, or in the panel in the British Museum here reproduced for comparison (fig. 2); but it manifests the same defects, the same meaningless complication of folds, the same occasional tendency to represent garments in unnecessary agitation as if stirred by a violent wind, peculiarities far more

characteristic of the work done in northern Europe during the ninth and tenth centuries than of anything produced in Italy or in the Byzantine Empire at an earlier time. Again, the architecture of the tomb from which the Demoniac has issued, conforms in all its details to that found in contemporary manuscripts. The capitals of the columns resemble those of the architectural borders of the Eusebian canons, introduced into the west from Syria, as well as those seen in contemporary Byzantine work.[a] The bolts on the doors are closely paralleled in miniatures of the Bible of St. Paul, photographed by Westwood, and in the Bible presented by Count Vivian to Charles the Bald.[b] Further, the curtain which hangs beneath the lock (Plate XXXIII., fig. 4), is analogous to those suspended

Fig. 4. Figures from a tenth-century Psalter in the Royal Library at Stuttgart.

behind the throne described in the Apocalypse, or behind King's thrones in Carlovingian manuscripts; examples of this are found in the "Alcuin Bible," to which reference has already been made, as well as in Count Vivian's Bible, and the Lothair Gospels.[c] And finally the curious misplacement of the ornamental stripes upon the garments (Plate XXXIII., fig. 1), which has supplied one of the principal arguments to those who doubt the authenticity of the pyx, can also be illustrated from Western MSS. of about the same date. Fig. 4, *a b* and *c*, are

[a] See for example the Eusebian Canons in the *Codex aureus*, Harley MS. 2788 in the British Museum; and a Byzantine ivory plaque of the tenth and eleventh century at Berlin, *Elfenbeinbildwerke*, Album, plate iv. No. 9a.

[b] Westwood, *The Bible of the Monastery of St. Paul near Rome*, photographs 3,108 and 3,112, and *Palaeographia sacra pictoria*; plate reproduced from the Bible of Charles the Bald.

[c] Comte A. de Bastard, *Peintures et ornements des MSS. . . . pour servir à l'histoire des arts et du dessin depuis le 4me siècle jusqu' à la fin du 16me, livraison* iii.

derived from a Psalter of the tenth century[a] in the Royal Library at Stuttgart, and illustrate particular verses of the Psalms. They show that the vertical *clavi* of late Roman times were inserted by early German artists with little regard for their original and proper position. In fig. 4, *c*, the lower end of one of the *clavi* which run in vertical pairs down the front of the late Roman tunic, is placed horizontally on the mantle (chlamys) in the position of right belonging to the rectangular patch known as the *tablion*; while in fig. 4, *a*, the ends of two similar *clavi* hang across the knee of the harpist, conveniently filling an otherwise undecorated space. If with these misplaced ornaments are compared those upon the garments of Our Lord and his disciple (Plate XXXIII., fig. 1), the similarity will at once be apparent. Thus the incorrect application of these details of ancient costume, so far from indicating the work of a modern counterfeiter, is in fact a striking confirmation of the early mediaeval origin of the pyx.

There remain one or two iconographical points on which a few words may be said. The bearded figure with the long moustache and hair parted down the centre (Plate XXXIII., fig. 3) has at first sight a general appearance somewhat suggestive of a later period; but here again Rhenish ivories of the tenth century furnish sufficiently near parallels.[b] A more serious objection would be raised if it were certain that this bearded figure were intended for Christ; for then we should have on the same object two figures of Our Lord, one with and the other without the beard, an anomaly which, though not unparalleled in Early Christian art,[c] would surely be superfluous in the present instance. The principal reason for identifying this figure with Our Lord is doubtless due to the Greek gesture of benediction which he makes with his right hand. But I think this fact hardly in itself suffices to prove the case, and that the gesture, like those made by the other disciples, simply indicates that the person who makes it is engaged in conversation. The fingers of the central personage form the Latin gesture of benediction, and of the three this figure has the greatest resemblance to that of Our Lord on the other side of the pyx. If Christ is represented by any of them, which I am inclined to doubt, it would surely be by that the figure in the centre; the lateral figures, like that immediately behind Christ in the principal scene, carry books, suggesting that they are evangelists, and form the remainder of Our

[a] J. H. von Hefner-Alteneck, *Trachten Kunstwerke und Geräthschaften vom frühen Mittelalter bis Ende des 18^ten Jahrhundert*, vol. i. (Frankfurt, 1879), plates xxii. and xxvi.

[b] *Elfenbeinbildwerke*, Berlin, 1902, No. 38, plate 12.

[c] J. Strzygowski, *Byzantinische Denkmäler*, i. 33.

Lord's following at the time of the miracle.[a] The youthful appearance of Our Lord need excite no surprise, for the beardless type, which was of course very common in Early Christian times, continued to be the rule through the greater part of the Carlovingian period, and was not entirely superseded until the rise of Gothic art. The absence of the nimbus is more remarkable, and is a rare omission for an artist of the ninth or tenth century to have made. But the earlier pyxes of the Christian East frequently leave it out; and if, as we suppose, the carver of the Sneyd pyx was acquainted with such older ivories, the peculiarity becomes at least intelligible.

The healing of the Demoniac is a subject not found in the Early Christian art of the West,[b] but occurs several times in works originating in the Christian East, especially in Syria. The most conspicuous examples are the large carved ivory bookcovers in five parts, now preserved in Paris, Ravenna, and Etchmiadzin in Armenia, all of which are connected with the Syro-Egyptian artistic province, and date from the sixth and seventh centuries. One other pyxis in the Basilewsky Collection at St. Petersburg is carved with the same scene, and this is also attributed to Syria and to the same period. The subject further occurs in a miniature of the Syrian gospel of Rabula (A.D. 586), upon a gold encolpion from Adana, and in the mosaics of San Apollinare at Ravenna, a city in which Syrian artistic influence was very strong in the sixth century. It survived throughout Byzantine times and is found at Mount Athos. But everything points to Syria as the country in which it first became popular.

There is no great difficulty in supposing that the model from which the carver of the Sneyd ivory worked may have been a Syrian pyxis of the sixth or early seventh century.[c] At this period the artistic and commercial activity of Syria was equally remarkable, and the settlements of Syrian merchants, which had long been established in every part of the empire, were so many agencies for distributing the products of their country. Works of art of all kinds accompanied the silk and spices of the East from the ports of the Eastern Mediterranean to the West, and that ivory carvings were to be found among these there can be little doubt. For

[a] Garrucci, *Storia dell'arte Cristiana*, vol. vi., interprets these three figures as three apostles.

[b] J. Strzygowski, *as above*, p. 37.

[c] On Syrian influence in the West, see P. Scheffer-Boichorst in *Mittheilungen des Instituts für Oesterreichische Geschichtsforschung*, (1884), v. 521 ff, "*Die Syrer im Abendlande*"; H. Janitschek, in *Festgruss an Anton Springer* (Berlin and Stuttgart, 1885), *Zwei Studien zur Geschichte der Carolingischen Malerei*; F. Leitschuh, *Der Bilderkreis der Carolingischen Malerei* (Bamberg, 1889), 7, etc.

there still exist in European collections ivories made in the West, the descent of which from Eastern Christian originals is not open to question, and the same relationship is apparent in the case of Carlovingian manuscripts; it has already been mentioned that the ornamentation of the tables of Concordance known as the Eusebian Canons, which form so striking a feature in Carlovingian Gospels, was introduced from Syria. It is therefore quite in the order of things that the nation whose representatives lived and died at Trèves in the fourth century, formed a colony at Orleans, provided Paris with a bishop in the year 591, and helped both Gregory of Tours and Charlemagne in their translations from the Greek, should have furnished the ivory carvers of the West with many of their models. It would have been astonishing if craftsmen so eager in imitation as those of Charlemagne and his successors had taken no advantage of the opportunities derived from so prolific and accessible a source.

The general impression produced by the pyx is that of a piece of work influenced both by earlier ivory carvings and by contemporary miniatures, deriving from the first its form and the traditional method of arrangement, from the second its over-elaborate treatment of drapery and its occasional inaccuracy in archæological detail. The rudeness of execution and the similarity of certain mistakes in the ornamentation of the garments to those noted in the Stuttgart Psalter, suggest the tenth century rather than the ninth as the more likely date; while the analogy with Rhenish work (*cf.* fig. 2) makes it probable that some point on the Middle Rhine was the place of manufacture.

XX.—*Recent discoveries in the Cloister of Durham Abbey.* *By* W. H. St. John Hope, *Esq., M.A., Assistant Secretary, with Introduction by* Canon J. T. Fowler, *D.C.L., F.S.A., a Local Secretary for Durham.*

Read 18th June, 1903.

INTRODUCTION.

The custom of washing the hands before the principal meal of the day, based, as it is, upon common decency and convenience, has at all times been observed by civilised people. The Greeks and Romans, or at any rate the more leisured and luxurious among them, not only took their baths before the chief meal, but had water for their hands brought round repeatedly during the meal, which would be the more necessary when the fingers were used in eating much more than they are now.[a] The disciples of Christ were accused by the Pharisees and certain of the Scribes of transgressing the tradition of the elders by not washing their hands when they ate bread.[b] The "tradition of the elders" is abundantly illustrated in the literature of the Jews,[c] and similar traditions prevail among the Mohammedans and other Orientals. In religious minds the act of washing the hands has naturally acquired a symbolical meaning. Hence the *Lavabo* in the Eucharistic rite which is described by Cyril of Jerusalem (A.D. 348-386) as not merely for the sake of personal cleanliness, but as a symbolic act, connected with the words of Psalm xxvi. 6, "I will wash my hands in innocency, O Lord, and so will I go to thine altar."[d]

[a] Smith, *Dict. Antiq.* 1870, pp. 185, 186, and reff.; Becker, *Gallus*, tr. by Metcalfe (ed. 1895), 113.

[b] St. Matthew xv. 2; St. Mark viii. 3, 4.

[c] Mishna, Tract *Yadaim* (Hands) and the commentaries on it in the Talmud; J. Barclay, *The Talmud* (London, 1878), 324; P. J. Hershon, *A Talmudic Miscellany* (London, 1880), Index under "Hands."

[d] For other references see Smith and Cheetham, *Dictionary of Christian Antiquities* (London, 1880), ii. 938.

This symbolic act would be familiar to all monks from the very first, and when almost every act of daily life assumed a religious significance, it seems highly probable that such would be the case with the washing of hands at other times in the course of the day, and particularly in the early morning before entering the church, and later on when all were assembling for a meal which was regarded as a religious duty and assumed the character of a religious act. The early monastic rules, however, certainly indicate a reaction against Roman luxury and licentiousness under the Empire,[a] and, we may perhaps add, against Jewish scrupulosity.

Monastic ablutions were of two kinds, namely, the bathing of the whole body, which was done in the bath-house, and the washing of the hands and face, also done in the bath-house, probably, in earlier times, but at any rate from the eleventh century onward, at a laver in the cloister. The plan of St. Gall, c. A.D. 800, shows a bath-house in connection with the common-house or warming-house.[b] But it shows no cloister laver. Just so, the earliest monastic rules refer to bathing on rare occasions, but not to washing in a morning or on going into the frater. The rule of St. Benedict prescribes the use of baths for the sick, but to the healthy and especially the young, "tardius concedatur," unless it be the washing of feet.[c] Other early rules to the same effect are referred to in Smith and Cheetham's *Dictionary of Christian Antiquities* under LAVATORY. The letter of St. Augustine to a society of devout women, which formed the basis of the rule for Austin Canons,[d] says that baths are not to be taken with assiduity, but may be allowed, apparently, to persons in health, once a month. The rule for men[e] does not seem to recognise the bath except in cases of sickness, when, under medical advice, it

[a] Smith and Cheetham, ii. 939.

[b] *Archæological Journal*, v. 85.

[c] *De Septimanariis Coquinæ.*—Egressurus de septimana sabbato mundicias faciat. Linteamina cum quibus sibi fratres manus aut pedes tergunt, lauet. Pedes vero tam ipse qui egreditur, tam ille, qui intraturus est, omnibus lauent.—*Reg. S. Benedicti*, cap. xxxv.

De infirmis fratribus.—Balnearum usus infirmis, quoties expedit, offeratur. Sanis autem, et maxime juvenibus, tardius concedatur.—*Reg. S. Benedicti*, cap. xxxvi.

[d] Lavacrum etiam corporum ususque balnearum non sit assiduus, sed eo quo solet intervallo temporis tribuatur, hoc est, semel in mense. Cujus autem infirmitatis necessitas cogit lavandum corpus, non longius differatur: fiat, etc.—*S. Augustini Epistola* ccxi. in *Observances in use at the Augustine Priory at Barnwell*, ed. J. W. Clark, 1897, p. 14 n.

[e] Indumenta vestra secundum arbitrium prepositi lauentur, sine a vobis siue a fullonibus, ne interiores anime sordes contrahat munde vestis nimius appetitus. Lauachrum eciam corpori cuius infirmitatis necessitas cogit minime denegetur. Fiat sine murmure de consilio medici, ut eciam si nolit, iubente preposito faciat quod faciendum est pro salute. . . . . Nec eant ad balnea, siue quocunque ire necesse fuerit, minus quam duo vel tres.—*Regula S. Augustini*, in *Barnwell*, p. 14.

is to be taken without a murmur.[a] Lanfranc refers to baths being prepared before Easter and Christmas[b] for those who wish to have them,[c] and to the washing of heads with lather in the cloister.[d] At Barnwell the chamberlain was to provide

[a] Lavacra etiam, cuius infirmitas exposcit, minime denegentur. Sed fiat sine murmuratione de consilio medicinæ. Ita vt etiam siue lauari nolit ille, qui infirmus est, iubente seniore fiat, quod opus fuerit pro salute. Si autem nulla infirmitate compellitur cupiditati suæ non præbeatur adsensus.

Nota.—Iuxta hanc constitutionem S. Radegundis quæ S. Cæsarii Regulæ seruiebat, fundatrix cœnobii sanctæ crucis in vrbe Pictauensi balneum in eodem monasterio construi iussit ad vsum sanctimonialium, vt notum est ex S. Gregorio Turonensi lib. 10, hist. cap. 16.

Reg. S. Cæsarii Episcopi, cap. xxix. § 22, in S. Benedicti Anianæ Abbatis *Concordia Regularum* (Paris, 1638), 670.

Focos vero in schola pœnitentes (si fuerint) bini et bini per hebdomadas faciant. Similiter ad caput fratrum lauandum per singula sabbata, vel balnearum vsus per festas solemnitates præparent; aut si sunt alia extrema, pœnitentes faciant.

Nota.—*In schola*, Id est, in dormitorio.

Ad caput fratrum lavandum. Olim monachi caput lauabant, quod apparet ex MS. Columbani Pœnitentiali: Pœnitentes fratres, quamuis opera difficilia et sordida efficiant, non lauent capita, nisi in die Dominico, id est, octauo. Sin autem, nisi in quintodecimo die, aut certe propter fluentium capillorum incrementum.

Vel Balnearum, etc. . . . . Legendum, *per certas*. Olim monachi et moniales quibusdam solemnitatibus instantibus, maxime Paschæ et natalis Domini balneis vtebantur. (Quotations from Concordia S. Dunstani cap. 3, Lantfrancus in decretis c. i. § 2, Vsitatorium monasterii Culturæ Cenomanensis, Beda lib. 4, hist. Angl. c. 19, Acta S. Vviboradæ martyris inclusæ in monasterio S. Galli, S. Augustinus, lib. 9, Confessionum, cap. 12.) Neque hæc Regulæ S. B. aduertantur, qui non omnino a sanis balneum remouit, sed tardius concedendum edixit.—*Ex Regula cuiusdam Patris*, cap. xii. § 26, in *Concordia Regularum*, 830 ff.

Balnearum usus vel cura medendi summo adhibeatur studio. Sanis vero præcipue iuuenculis tardius concedatur.—*Ex Regula cuiusdam*, cap. xv. § 25, in *Concordia Regularum*, 672.

[b] St. Etheithryth (Audrey) would hardly take a warm bath except before the greater festivals, as Easter, Pentecost, and Epiphany. Bede, *Eccl. Hist.* lib. iv. cap. xix. Plummer, in his note on the passage, shows such abstinence to have been a regular feature of the ascetic life, dating even from Apostolic times.

[c] Vigilia Thomæ Apostoli si dies Dominicus non fuerit radantur fratres et sic balneentur qui volunt balneari, ut duobus diebus, ante Dominicam nativitatis sint omnes balneati. Si necesse sit ipso Apostolicæ festivitatis die balneari possunt.—*Lanfranc* in *Reyner*, App. 213.

Feria tertia (tempore Passionis Dominicæ) radendi sunt fratres, in claustro simul ipsa die, et in crastino debent esse balnea præparata. Quæ quo ordine fiant, et quomodo illuc fratres ire, et qualiter ibi se habere debeant, superius dictum est cum sermo esset de balneis ante Christi nativitatem præparandis.—*Lanfranc* in *Reyner*, App. 218.

[d] Tunc lesciva in claustrum deferatur, et qui vult caput lavet, quisque sibi, nullus alii, præter magistros infantum, qui parvulis pueris, qui id non possunt, capita lavare debent.—*Lanfranc* in *Reyner*, App. 239.

soap for the baths of the brethren, as well as for shaving and washing of heads.[a] At Durham the same officer provided bowls for the washing of feet, and a tub in the sartry (tailor's shop), for the brethren to bathe in.[b] Whatever may have been the habits of the earliest monks, those of the Middle Ages seem to have paid as much attention to personal cleanliness as the average of people did in those days. Neither the rule of St. Benedict nor that of the Austin canons mentions the washing of the hands and face in the morning and during the day, but it is probably taken for granted that this was done, though it is not likely that any lavatory was provided. It may have been done in the bath-house, if they had no other place convenient for the purpose. It is stated by Viollet le Duc that a vessel of marble, stone, or metal was sometimes placed at the entrance of the frater.[c] The later regulations both of monks and of regular canons frequently refer to the brethren going into church or frater *lotis manibus*,[d] and the cloister laver is often

[a] Ad camerarium precipue pertinet aquam calidam prouidere ad rasturam conuentus, et saponem capitibus fratrum abluendis. Ad balnea fratrum, si petatur, saponem prouidebit.—*Barnwell*, 194.

[b] *Compotus fratris Johannis Fossor, Camerarii Dunelm.* 1324-5. *Expense necessarie.* In 13 boll pro pedibus fratrum lavand., 18*d*. . . . . in reparacione cacabi sartrine, 3*d*. *Exp. minute.* In reparacione unius cuve in sartrina in qua lavantur fratres, 5*d*.—*Durham Account Rolls* (Surtees Society, vol. xcix.), 167.

[c] *Dictionnaire de l'Architecture*, vi. 174, referring to *Dictionnaire du Mobilier*, l'article *Lavoir*.

[d] Cum appropinquaverit tempus horæ tertiæ pulsetur a Secretario modice signum minimum, quam skillam vocant, et statim pergant in dormitorium et calcient se diurnalibus et cultellos accipiant; deinde ad lavatorium vadant et prius lavent se et postea pectinent: dehinc ad ecclesiam veniant, aquam benedictam sumant, in chorum vadant, et incumbentes terræ infantes expectent. Cum vero infantes loti fuerint et se pectinare incœperint pulsetur majus signum ad Horam.—*Decreta D. Lanfranci pro ordine S. Benedicti* in Reyner, *Apostolatus Benedictinorum in Anglia* (Duaci, 1626), *Appendicis tertia pars*, 212.

Post horam prior pulset signum. Vel cui iniunxerit ipse. Quod si forte per negligentiam cibus nondum paratus fuerit, non pulset (signum) donec paratus sit, nec fratres abluant manus, sed interim sedeant in lectione donec signum pulsetur. Quod et ad omnes refectiones similiter teneantur. Ablutis igitur manibus et detersis, intrent refectorium, et venientes ante sedes suas inclinent se versus principalem mensam.—Guignard, *Les Monuments Primitifs de la Règle Cistercienne*, Consuetudines lxxvi., *De refectione*, 180.

Apries l'eure doit li prieuse souner u autre cui ele le coumande, et se li mangiers n'est aparellies par negligence se laist on à souner et à laver les mains, et siece on en leçon dusque adonc que on sounera. Et ce tiegne on à tous mangiers. Quant on a lavées ses mains et essuées se doit on entrer en refroitoir et aler chascune en son siege, et encliner à le haute table.—*Ancienne Traduction Française*, Guignard, 490.

Exeat Circator, et tintinnabulum pulsat ad refectorium, cunctique pariter illuc venientes

mentioned. There were two kinds of cloister lavers; the earlier ones were commonly round, polygonal, or multifoil, pouring forth streams of water through a number of little spouts, from which the water fell into a lower basin encircling the upper one. The later ones were usually in the form of a long trough with the water running in at one end and out at the other, or supplied from a

lavant manus, et intrant, expectantque Domnum Abbatem.—Ex antiquis consuetudinibus Germaniæ nu. 33, in Martene, *Monumenta Ritualia* (Bassani, 1788), lib. I. cap. viii. 29.

Sine ullo strepitu festinent lotis manibus introire refectorium.—Ex antiquo ordine conversationis monasticæ c. 11, in Martene, *Mon. Rit.* lib. I. cap. viii. 29.

Facto igitur signo, fratres intrent refectorium, et ablutis manibus inclinantes versus Crucifixum, stent in ordine suo dispositi ante mensas.—*Constitutiones Burefeldenses*, in Martene, *Mon. Rit.* 29.

Quando percutitur cymbalum, si fratres in ecclesia fuerint, finita hora exeant cum processione ad lavatorium, quod si in claustro sederint, ad primum cymbali pulsum, statim surgentes libros in armario reponant, et in claustro ita se ordinent, sicut ad capitulum determinavimus. Congregatis itaque universis fratribus, prior iterum percutiet cymbalum, et fratres statim surgentes, junioribus præcedentibus et senioribus subsequentibus per ante capitulum cum processione ibunt ad lavatorium. Venientes autem secundum modum lavatorii se ordinent. Si non possunt simul omnes, juniores prius lavent, deinde seniores. Cum igitur singuli quique manus et laverint et deterserint, venient et stabunt in latere supra ad introitum refectorii, hinc inde ordinati secundum utrumque chorum versi ad se de contra, quousque laverint universi. Nullus qui comedere debeat illa hora in locutorio remaneat; sed mox ut fratres ad lavatorium venerint, debet exire, et cum aliis manus abluere. Ille etiam qui conventum tenet, hoc maxime cavere debet, ne postquam fratres laverint, moram faciendo faciat eos de foris refectorium diutius expectare. Procedente autem abbate ad lavatorium, percutiet prior semel cymbalum, et statim procedent omnes per ordinem, ita ut nullus præcurrere aut ordinem perturbare præsumat. Ingredientes autem refectorium dividet se uterque chorus hinc inde in utroque latere juxta mensas, etc.—*Antiquæ Consuetudines canonicorum regularium S. Victoris Parisiensis*, Martene, *Eccl. Rit.* 1788, Appendix, 253.

Die aliquantulum fulgente, prior considerans diei quantitatem, aliquando temporius, aliquando serius ante alios surgat, et campanulam dormitorii concutiet: tunc omnes fratres surgant, et expleta corporis necessitate, ordinate, ut dictum est, ad lavatorium veniant: ibi secundum modum lavatorii lavando se ordinent, et si simul lavare non potuerint, juniores prius lavent. Lotis manibus ad partem claustri quæ est a parte ecclesiæ venientes, hinc inde ordinati secundum utrumque chorum versi ad invicem alios expectent, quousque laverint universi. Cavere autem debent diligenter omnes fratres, ne cum manutergiis aut nares emungant, aut dentes fricent, aut sanguinem abstergant, aut aliquam immunditiam tractent; et similiter intelligendum est de mensalibus in refectorio, et aliis manutergiis in ecclesia: deinde ecclesiam ingrediantur, etc.—*Constitutiones Canonicorum Regularium S. Dionysii Remensis, Ord. S. Augustini*; Martene, *Eccl. Rit.*, Appendix, 297.

Post refectionem et gratias, ascendentes omnes dormitorium, dormiant usque at nonam: ad signum nonæ intrent ecclesiam eo modo quo ad primam; post nonam lotis manibus bibant simul in refectorio, et dato signo eant ad laborem usque ad vesperas.—*Primaria Instituta canonicorum Præmonstratensium*, Martene, *Eccl. Rit.* (Bassani, 1788), App. 326.

Hora competenti ante prandium vel cœnam a sacrista paucis ictibus campana pulsetur, ut si

long pipe at the back that delivered jets of water through a series of spouts. These long-trough lavers were sometimes placed in the line of the cloister-arches, and sometimes within arches sunk in the back-wall of the alley near the frater door. The earliest lavers of which we have any particular knowledge are those shown in the Norman plans of the hydraulic system at Canterbury, which plans are well reproduced and described in Professor Willis's work on the Conventual Buildings of Christ Church in that city. There were no less than four in the above monastery, all of the multifoil type, three of them sheltered by circular houses with conical roofs, and one in the North Hall. It is with lavers of this type that we are more particularly concerned in connection with Durham. There are, or were, others in a more or less perfect condition at Wenlock (Cluniac), Mellifont, Ireland (Cistercian), Peterborough (Benedictine),[a] Veruela in Spain (Cistercian),[b] Pontigny, basin only remaining, Thoronet, Fontenay (all in France and Cistercian),[c] Alcobaça (Cistercian) and Batalha (Dominican) both in Portugal.[d] Viollet le Duc says that in Spain the convents possessed magnificent "lavabos," and thinks that the great stress laid on abundant ablutions by their

qui foris sunt ad refectionem sine mora festinent: tunc prior pulset cymbalum. Quod si forte per negligentiam cibus nondum paratus fuerit, non pulset donec paratus sit; nec fratres abluant manus, sed interim legant donec cymbalum percutiatur: ablutis vero manibus et detersis, sedeant extra refectorium, donec prior nolam refectorii uno ictu percutiat, et tunc suo ordine ingrediantur, etc.—*Ibid.* 327.

De refectorio. Sciendum est quod quando non fit spatium inter missam et horam, debet fieri ante cymbali percussionem: qua pulsata, hebdomadarius incipiat, post cujus finem prior præcedens pulset cymbalum, et alii fratres euntes comestum, veniant per lavatorium, et lavent eo ordine quo mane, et disponant se ante refectorium donec laverint universi: deinde intrent refectorium: ita ut nullus præcurrere aut ordinem turbare videatur: sed dividat se chorus uterque hinc et inde juxta mensas suas, quilibet ante mensam suam, etc.—*Const. S. Dionysii Remensis, Ibid.* 299.

Egressi de dormitorio lotis manibus et capitibus pectinatis antequam alicubi diuertant, prius ad ecclesiam ire debent, vbi, aqua benedicta aspersi, pure oracioni deuocius insistentes, primum querant regnum dei et iusticiam eius.—*Barnwell*, 106.

Quando fratres exeunt processionaliter de ecclesia ad prandendum, si custos ordinis semel percusserit cymbalum, licite possunt fratres manus abluere, et in refectorium intrare, et sedendo expectare. Si autem cymbalum non percusserit, forte quia prandium non est paratum, uel quia panis est in clibano, uel quia celerarius cum claue est alibi occupatus, tunc non debent manus abluere, set in sedibus suis in claustro sedere, et orare uel legere, quousque cymbalum percuciatur. —*Barnwell*, 156.

[a] See *post*.

[b] G. E. Street, *Gothic Architecture in Spain* (London, 1865), Pl. xxiii.

[c] Viollet le Duc., *Dictionnaire de l'Architecture*, vi. 170 ff. under *Lavabo*.

[d] Photographs in possessionf the Rev. Dr. Farrar.

Arab neighbours influenced the construction of their cloisters. But he does not name any examples. The first laver at Durham was sheltered by a square building; the form of the basin is unknown, but it appears to have had a circular substructure. This earlier laver was probably found to be too small to accommodate the monks, and so a larger one was made on the site of the former one, having an octagonal basin in a round building over which was a dovecot covered in with lead; the whole was standing in 1593, when it was described in *Rites of Durham*.[a] At some time unknown, the building was demolished and its site obliterated, but the marble basin was placed in the middle of the garth, where it has long misled writers on the cathedral and the general public, who have supposed that it was *in situ*.

Recent excavations, made at the suggestion of Mr. W. H. St. John Hope, have resulted in the discovery of the foundations both of the earlier and of the later lavers "over against the frater house door." The cloister well, which had long been lost, has also been opened and cleared out to the bottom. There are some notices connected with it in the account rolls.[b] The bathroom was under the direction of the chamberlain, who provided hot water, towels, soap, and other requisites.[c] The laver was a part of the fraterer's charge, as being closely connected with the frater itself. At Durham he provided the new laver,[d] and at Barnwell he saw that the laver was always clean and in proper order, and that there should always be sand and a whetstone ready there for sharpening knives.[e] The cloister garths of monastic churches were often furnished with wells; these formed the original provisions for water before the hydraulic systems were formed for supplying the lavers, and these wells were retained in reserve, to be used when the new sources failed or required repairs.[f]

I will now leave the results of recent excavations to be described by Mr. Hope.

J. T. F.

[a] See *post*.

[b] See *post*.

[c] Camerarii est procurare . . . . tersoria in claustro pendentia.—*Lanfranc* in *Reyner*, App. 237.

[d] See the account in the Appendix to this paper.

[e] Ad ipsum (refectorarium) eciam pertinet lavatorium et sordes et feces que sunt in fundo lavatorii mundare, ut fratres honeste aqua munda possint manus et ora sua lauare; sabulum et cotum pro purgandis et acuendis cultellis semper ibi paratum habere.—*Barnwell*, 154.

[f] There is a well within the abbey precinct, other than that in the cloister, of which the following notices occur in the accounts:

1338-9.—In mundacione fontis infra Abbathiam, 2*s*.—*Rot. Purs.* in *Rolls* (Surtees Society, vol. c.), 536.

1340-1.—Et in structura unius domuncule lapidee supra le Welleheued, 23*s*. 6*d*.—*Ibid*. 539.

1349-50.—In juncturis, Stapils, Hupis, Gugeons, Girdils, Spykyng, et Scotnayls pro fonte infra

The excavations referred to by Dr. Fowler were undertaken during the latter part of March last, and were devoted (1) to proving what I had ventured to suggest, that the laver-stones in the middle of the garth would be found to be resting merely on the ground, and (2) to the trenching of the probable site of the lavatory from which they came in the south-west corner of the cloister.

The remains discovered, when I first saw them on 6th April, presented a confused tangle of rough foundations (Plate XXXIV.), but a little patient examination soon resolved them into order.

The oldest in point of date is a rubble foundation, 2 feet 10 inches wide, running across the cloister in a northerly direction from nearly opposite the third buttress from the south-west angle. (See plan, Plate XXXV.) It was laid bare for about 30 feet, and traced with a "pinch" or crowbar for 24 feet 6 inches further, but could not be felt beyond that.

The southern end of this wall has been reduced in thickness to 2 feet 6 inches by cutting back its eastern face, and against this narrower part has been built a structure 15 feet square within. Of this only the foundations, about 2 feet thick, of the north and east sides are left. Whatever had remained of the south wall was destroyed in recent years during the making of a deep drain round the cloister.

In the middle of the area of this building are two pairs of stones, 8 inches high, arranged as if forming part of a circle about 5½ feet in diameter; but the

Abbatiæ et pro grangia de Beaupayre de novo edificanda, de proprio terro, 3s. 3d. —*Ibid.* 2567.

1345-6.—In diversis reparandis pro le Wellhouselave, cum 1 clave empt. pro eodem, 4l. —*Ibid.* 555.

1383-9.—Item Henrico Plumbet pro muris circa unum fontem extra Abbatiam 3s. —*Ibid.* (vol. cxv.) 356.

1396-7.—pro pavimentione super stabulum hospitum et le Wellehouse infra abbatiam, 13s. 6d. —*Ibid.* 641.

1397-8.—pro coopertura unius fontis in orto curiali abbatiæ, 6s. 8d.

—pro cooperta lectum unius parve domus supra fontem in orto Abbatiæ, 2s. 6d. —*Ibid.* 643.

The following notices of the Surtry well are also found:

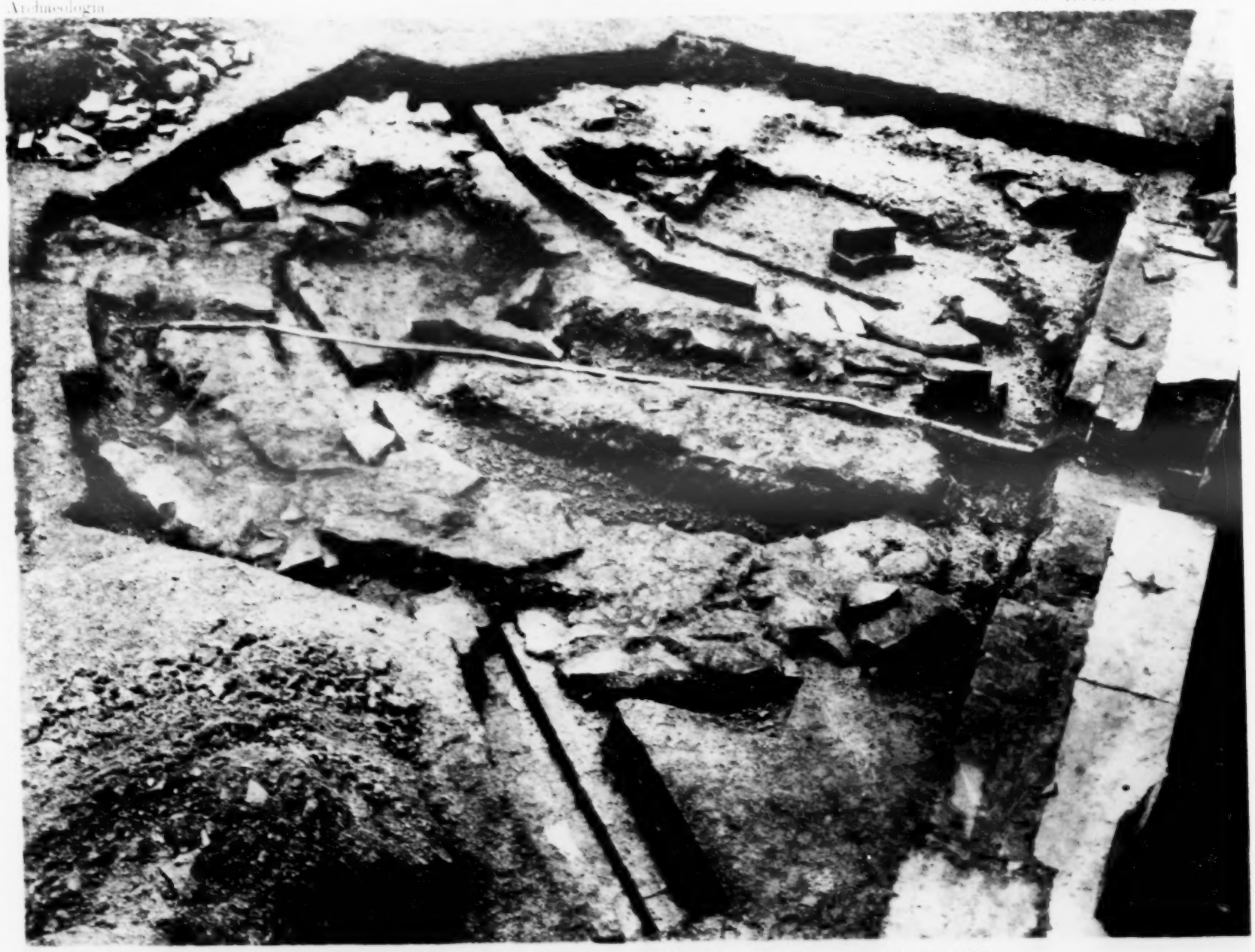
1324-5.—in reparacione del larker de fontes, 4l. —*Rot. Camerar.* 167.

1342-3.—in ——— reparacione fontis sartrine. —*Ibid.* (vol. xcix.), 170.

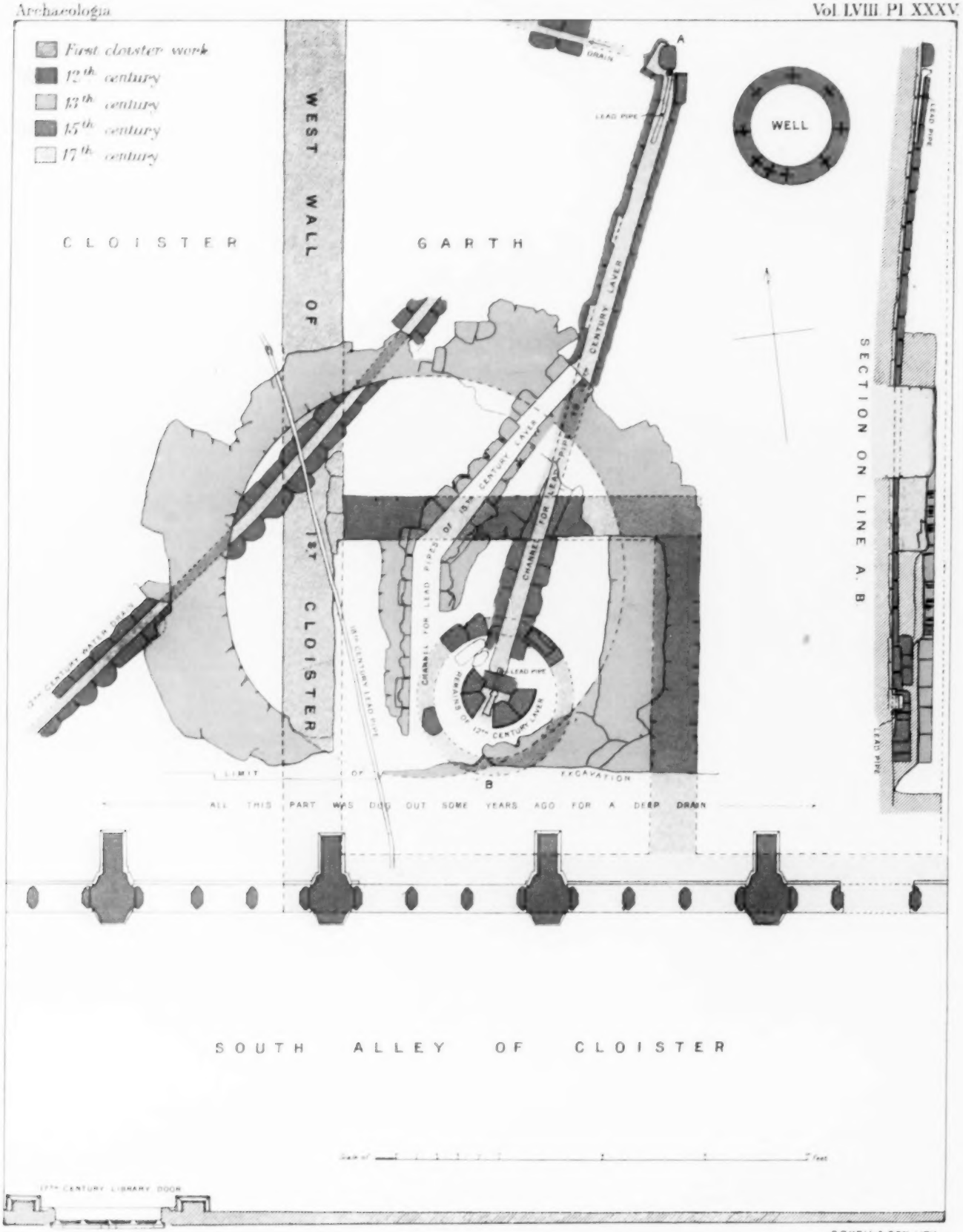
1447-8.—in reparacione unius dom ex opposito le Sarctree, ac unius gardini ibidem vocati Paradise, 6s. 10½d. —*Ibid.* 186.

The Surtry was the tailor's shop, which was in the same building with the Chamberlain's checker and the bath-house, afterwards assigned to the first prebendal stall.

There is a well in the Galilee, or a small building projecting from its west wall, but no notices of it have been found in the Rolls.



DURHAM ABBEY. FOUNDATIONS OF LAVATORIES UNCOVERED IN 1903.



DURHAM ABBEY.—FOUNDATIONS OF LAVATORIES UNCOVERED IN 1903.

radius to which they are actually worked is that of a circle with a diameter of 4 feet. They must therefore either have been misplaced or have originally belonged to something else. They have a slight chamfer on the outer edge, and one is made out of a previously worked stone. (Plate XXXVI.)

Round them are the remains of a larger ring of stones, of which only five are left in place. They are curved within to a radius of 3 feet, but are rough outside and of unequal thicknesses. (Plate XXXVI.) Upon one of them stands,

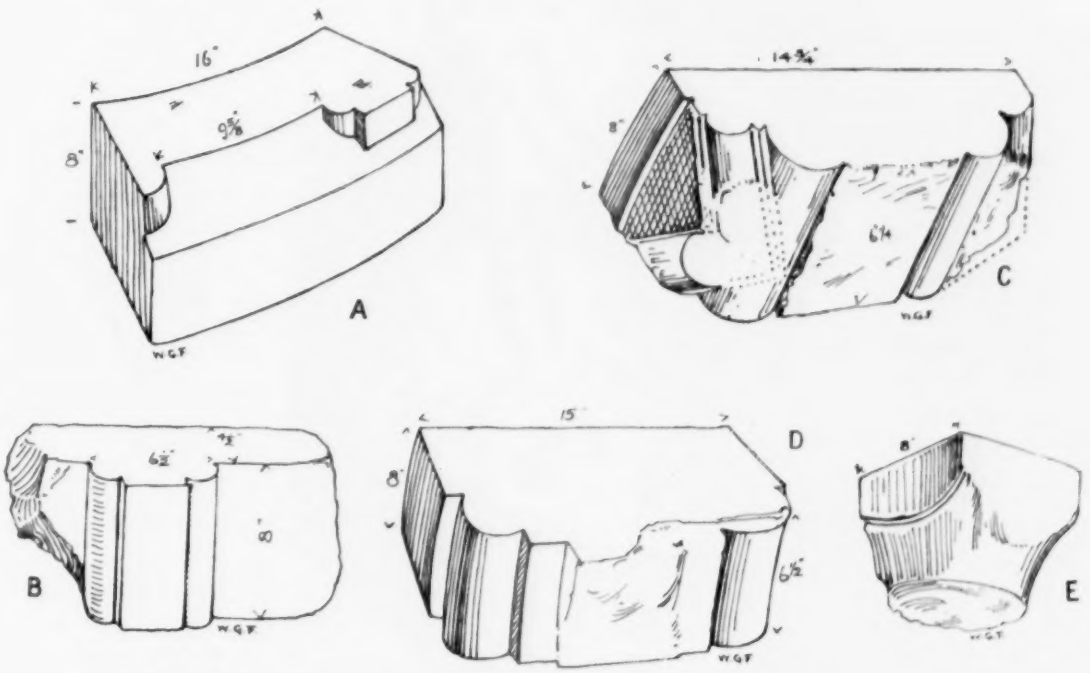


Fig. 1. Durham Abbey. Architectural remains of the Norman lavatory.

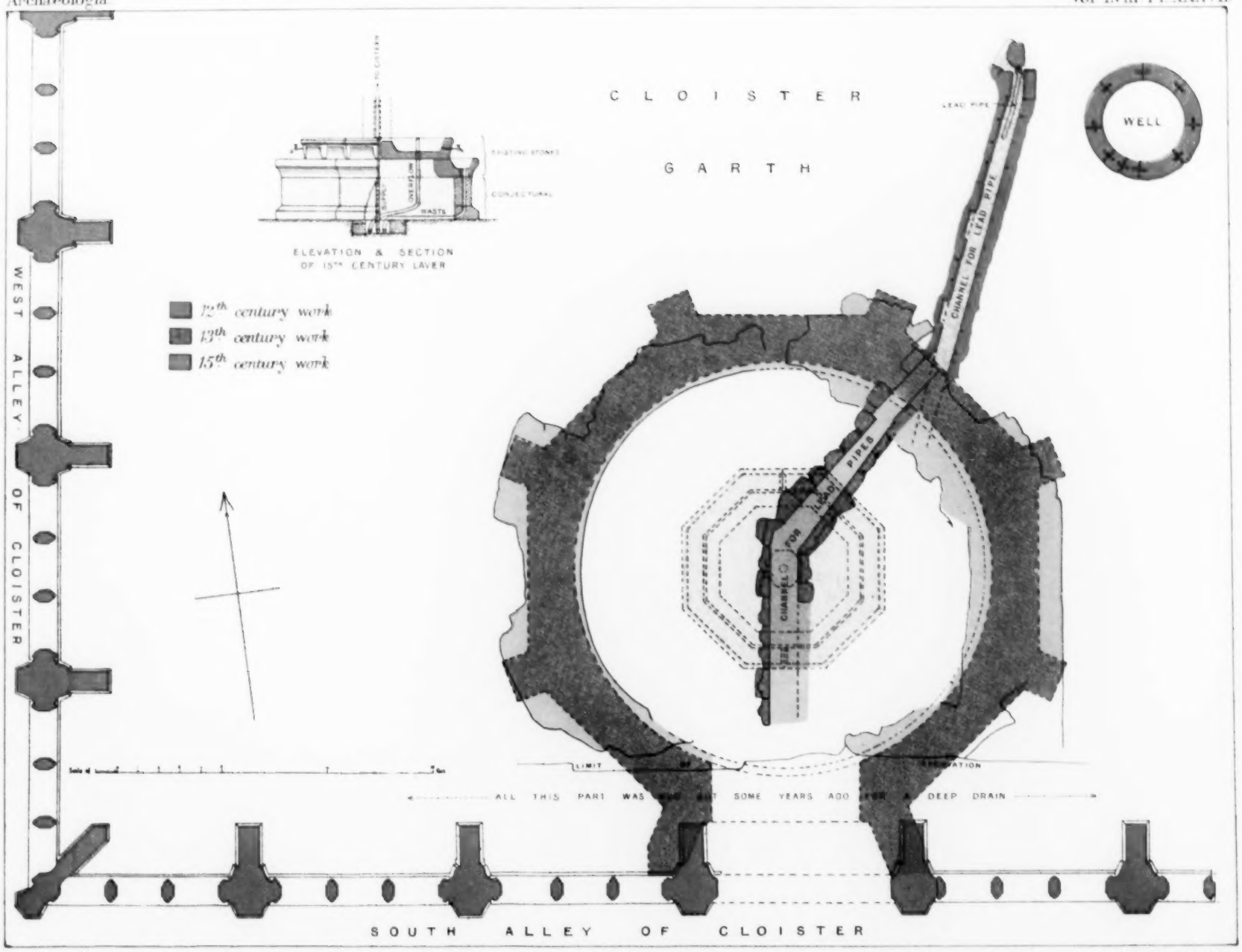
apparently *in situ*, though slightly displaced, the solitary survivor of a series of wrought ashlar stones that evidently formed a low circular wall to carry the laver. It is worked to the same curve as the foundation, and is 8 inches thick, the same in width, and has on the outside a broad chamfer. On this chamfer are the footings of a series of vertical ribs 6 inches wide and $9\frac{3}{4}$ inches apart, which if continued round would divide the outer face of the wall almost exactly into fifteen panels or compartments. (Fig. 1, A.) The space within the wall was purposely left hollow to allow of access to the pipes.

Within the inner group of stones lay a piece of lead piping of the usual medieval construction, and with an external diameter of 2¼ inches. It consisted of a straight piece 17 inches long, cut off at one end but with a joint at the other. From this joint, which is exactly in the middle of the group of stones, there projects a further length of 13 inches. This was once longer and vertical, but has been roughly shortened and then flattened down. The piece of pipe is kept in place by a stone fixed over it. From this there extends northwards towards the middle of the cloister a stone channel about 9 inches wide and 3 or 4 inches deep for the continuation of the pipe.

The structure, apparently of late twelfth-century work, to which these remains belonged was replaced in course of time by a larger and more ambitious one; but of this only the rubble footings remain. They overlie and intersect both the older wall and the foundations of the Norman lavatory and clearly belonged to a building about 20 feet in diameter, which was circular within and eight-sided without. In addition to the foundations of the enclosing wall there are within them the remains of a stone channel about 15 inches wide and 9 inches deep. It begins against the south wall and runs due north to the middle of the building, but then deflects north-eastwards and continues to the further side of the foundations of the circular wall, where it ends just over the earlier channel already referred to. The sides of the later channel are formed almost entirely of wrought stones. Most of these have been taken from the circular wall that supported the Norman laver, and consist both of base stones and the courses above them. All have worked upon them sections of the filleted ribs or attached shafts that divided the panels. (Fig. 1, A B.) In order the better to fit these stones for their present positions the curved backs have been made straight. There are also a broken Norman cushion capital (fig. 1, E), and several moulded voussoirs of arches. One of these is 15 inches across, with a roll on each side, and perhaps belonged to an entrance. (Fig. 1, D.) The others, of which three have been found, are of the same date but 14¾ inches across, and have a bold zigzag moulding on each face. (Fig. 1, C.) They are evidently part of an arcade, and, like the laver stones, no doubt belonged to the Norman lavatory. This seems to have been enclosed, not by walls with windows, but by an open arcade of three arches on each side, carried by detached shafts standing on a dwarf wall with the entrance on the south side. They would thus resemble the contemporary cloister arcade. One of the arch stones of this Norman cloister has been unearthed in the south-west corner of the garth during the recent excavations.

One other channel, perhaps a drain from the cloister, was found within the

DURHAM ABBEY. FOUNDATIONS OF 12th CENTURY LAVER.



DURHAM ABBEY.—FOUNDATIONS AND CONJECTURAL PLAN OF 13TH CENTURY CONDUIT.

limits of the later lavatory. It passes under its north-west part diagonally from north-east to south-west, as shown in the plan, and is clearly of earlier date than the lavatory itself. It is 6 inches wide and 5½ inches deep, with its sides partly formed of wrought stones, five of them being sections of a large attached semi-cylindrical shaft of Norman date.

The later lavatory has so completely disappeared, with the exception of its foundations, that not a single ashlar stone belonging to it can be identified. Portions of the marble laver that stood within it indeed remain, but they give no clue to the form or fashion of the structure that sheltered them. For this we must turn to the description of it in the work known as "Rites of Durham," which was written, as the original heading shows, in 1593, when the lavatory was still in existence. It was published by the Surtees Society in 1844, but having been long out of print is now being re-edited for the Society by Dr. Fowler. The following is the account in the new edition of "The Laver or Conduit," as it is called:

Within y^e^ cloyster garth over against y^e^ fraterhouse dour, was a fair laver or counditt for y^e^ mouncke to washe ther hande & faces at, being made in forme Round covered w^th^ lead and all of marble saving y^e^ verie uttermost walls. W^th^in y^e^ w^ch^ walls yo^w^ may walke rownd about y^e^ laver of marble having many litle Cunditte or spoute of brasse w^th^ xxiiij^o^ Cockes of brasse Rownd about yt, havinge in yt vij^o^ faire wyndowes of stone woorke, and in the Top of it a faire dovecotte, covered fynly over above w^th^ lead, the workmanship both fyne & costly as is apparent till this daie. And adioyninge to y^e^ est syde of the counditt dour, ther did hing a bell to geve warning, at a leaven of y^e^ clock, for y^e^ mouncke to cum̃e wash and dyne, having ther closette or almeries on either syde of y^e^ frater house dour keapt alwaies w^th^ swete and clene towels as is aforesaid to drie ther hande.[a]

From this description we learn that the building itself was of stone, and "in forme Round," that is, circular in plan, at any rate within, as its foundations show. (Plate XXXVII.) It was also eight-sided, since it had seven "faire wyndowes of stone woorke," the eighth side containing the entrance from the cloister alley to which the building was attached. Between the windows, as may be seen from the foundations, were broad pilaster buttresses, but it is impossible to say whether the intervening wall was curved as within, or worked into an octagon. The building appears not to have been vaulted, but to have had a wooden ceiling surmounted by a pyramidal roof covered with lead and containing a dovecot. On the east

[a] *Rites of Durham*, 1593 (Surtees Society, vol. cvii.), 82, 83. See also Notes, 261, 262.

side of the entrance, perhaps in a little turret or gable surmounting the buttress, hung the frater bell.

The dovecot was probably a later addition. It was still in existence in 1593, when a charge of £4 5s. was incurred "for mendinge, saudringe, and newcastinge y^e^ west side of y^e^ Church, *over of dovescott*, and part of y^e^ Dortor leades," etc.[a]

The laver that stood within, and probably the floor also, was "all of marble," with twenty-four cocks or taps of brass round it. The bill for the making of this has fortunately been preserved and was printed by the Surtees Society in 1839.[b]

The heading states that it is "The account of Dan Thomas Ayere, supervisor of the work, of the receipts and expenses of a certain new marble laver in the cloister of Durham, A.D. 1432-3."

The receipts amounted to £23 7s. 3d., and were made up of £18 6s. 8d. subscribed by the sub-prior and the monks, and the priors of the several cells of the monastery, and of £5 0s. 7d. from the officers of the convent and other sources.

The expenses begin with a number of payments to Thomas Hyndley, mason (*cementarius*) of

10*3s.* 10*d.* "for the getting or winning (*ducracione*) of the marble stones in the quarry at Eggleston;" of

4*2s.* 1*d.* "for the drawing out of the quarry, the scappling (*scapulacione*), and "wayning" of the said stones;" and of

11*0s.* 3*d.* "for the polishing (*dolacione*) of the marble stones and a payment made to Robert Nurry about the making of a lodge in the cemetery of Durham for working the said stones."

The abbot of Eggleston charged 20*s.* for the rent of the quarry, and Thomas Hyndley also received 3*s.* 4*d.* by command of the prior, and 40*s.* as a gratuity according to agreement.

Besides a number of small items, there are payments of 30*s.* to John Pykyryng, mason (*cementarius*) for 10 weeks at 3*s.* and 3 weeks at 2*s.* 6*d.*, and to John Fethyrstonhalgh, apparently his mate, of 30*s.* for 5 weeks at 3*s.* and 6 weeks at 2*s.* 6*d.* Two other men, one of whom is called *latomus* and "mason" in other accounts, each received 3*s.* for a week's work. John Pykyryng also had an additional 12*s.* for his work *per cices*. Thomas the plumber for his

[a] Durham Account Rolls (Surtees Society, vol. ciii.), 735.

[b] *Historiæ Dunelmensis Scriptores Tres* (Surtees Society, vol. ix.), Appendix, No. ccexlvi. p. cxlvii. See also the Appendix to this paper.

labour about the said work, probably in connexion with the pipes and waterworks, received 10s. Laurence the latoner of Newcastle was paid 9s. "pro factura le spowtys," and William the slater 8d. "pro le blaunchyng" or whitewashing for 2 days. Besides the items relating to stones already quoted, there is a separate charge of 28s. 4d. "for the carriage of three marble stones from the aforesaid quarry (that at Eggleston) to Durham."

There can, I think, be little doubt that these are the very stones that now lie in the middle of the cloister, and which formed the bason and trough of the

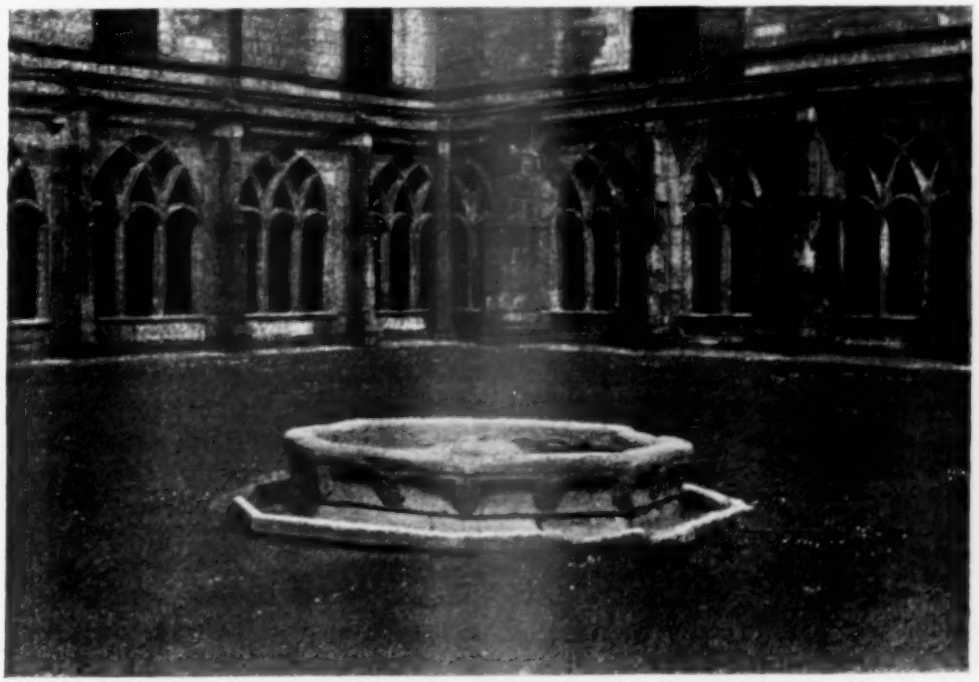


Fig. 2. Durham Abbey. Marble Stones of the fifteenth century laver, now lying in the middle of the cloister.
(From a photograph by Mr. J. R. Ellis, of Durham.)

laver itself. Their large size perhaps explains the special charge for bringing them to the Abbey.

The bason is wrought out of a single stone. It is octagonal in form, 7 feet in width and 1 foot in thickness, and is hollowed out to a depth of 8 inches. The sides, which are 5 inches thick, are sloped outwards, and have in the middle of each a blank shield; there is another on each point. The sides are slightly recessed so as to leave the shields in relief. In the middle of the bason is the lower part of a conical 8-sided shaft or pillar, perforated for the supply pipe, but

too much injured to show what it supported. There is also in the bottom of the bason a lead plug which marks the place of the overflow pipe. The bason rests upon the other two stones which unite to form the trough. Although they project about 13 inches beyond the bason, and have therefore a length of 9 feet 6 inches, their greatest width is only about 2 feet, the part under the bason being cut away so as to lessen the weight; their thickness is $10\frac{1}{2}$ inches. The surface of each is hollowed out with a trough sloping from a depth of $2\frac{1}{4}$ inches at the ends to 6 inches in the middle, where there is a hole 5 inches in diameter to carry off the waste water.

According to "Rites" the marble laver had "many litle Cundittes or spoutes of brasse with xxiiij Cockes of brasse Rownd about it." One Laurence, a latoner of Newcastle-on-Tyne, as noted above, was paid "pro factura le spowtes," which seem to have been disposed as follows. In three adjoining sides of the bason and in the three sides opposite them, are pierced pairs of holes. They are $2\frac{1}{2}$ inches from the bottom, 17 inches apart, and 1 inch in diameter. Since there are only twelve holes, the pipes that issued from them must each have carried two cocks. As the stones now lie, the two sides that are unperforated for cocks are over the joints of the two trough stones and the shallow ends of the waste channels. This seems to have been the original intention and arrangement.

It is unfortunate that nothing beyond these stones is left to show how the laver was worked and arranged. The bason and trough no doubt occupied their present relative positions, but they must have been raised up from the floor to a convenient height. If we may assume that the missing substructure, which was also formed of marble slabs, was 2 feet high, the edge of the bason would be about 4 feet from the floor. The supporting wall probably had an opening in the side for access to the pipes within. These pipes consisted of (1) the main or rising pipe, (2) the overflow pipe, and (3) the two waste pipes. Of the source of supply something will be said presently. The water from the overflow was no doubt used elsewhere, and a memorandum in the middle of the lavatory building account, "that the same Dan Thomas Ayere caused to be made at his own costs the running aqueduct into the cellar," may show what became of it. There is nothing in either lavatory to indicate how the waste water was disposed of, but it was probably carried off by lead pipes to an external drain.

It will be noticed that Dan Thomas Ayere's account does not make any mention of the structure within which the marble laver stood, nor of its "faire wyndowes of stone woorke" or the "faire dovecotte" in the top of it. We must therefore conclude that the octagonal building was of different date.

There are several reasons that compel us to adopt this view.

In the first place the building can not have been symmetrically placed with regard to the bay of the cloister alley from which it was entered, but was somewhat to the west of it. It can hardly therefore have been contemporary with the alley itself. Moreover, it is, I think, reasonable to assume that had it been contemporary with the existing cloister work it would have corresponded to it architecturally as to the thickness of its walls, the projection of its buttresses, and the design of its windows. But the foundations lately uncovered show that it did not correspond in any of these features, but had thicker walls, broad and shallow pilaster buttresses, and windows of much less span.

There is also one other fact to be gleaned from Dan Thomas Ayere's account. This concludes with these items:

> In sawing of boards for the pentise at the entry (*pro le pentees in introitu*), 6^{d}.
> To the carpenter for his labour about "le pentees," 14½^{d}.
> In nails bought for the said work, 6^{d}.
> To Thomas the plumber for his labour about the aforesaid work, 12^{d}.

Now, the cloister alleys had only lately been entirely reconstructed at the cost of Bishop Skirlaw and his executors, and the connexion between them and the lavatory, if it were an older building, must necessarily have been temporarily done away with. The new work being completed the lavatory was again joined to the alley by a short length of pentise covered with lead. The plan of the foundations shows that this was needed, and traces of it may be seen on the cloister wall.

Finally there is this other documentary evidence, that in a list of the various buildings erected and repairs done within the abbey during the twenty-nine years when John Wessington was prior, namely from Christmas, 1416, to Whitsunday 1446, there occurs:

> Item reparacio lavacrorum cum armariolis pro manutergiis se extendit ad xxvj^{li} v^{s}.[a]

This "repair," as we have seen, must have been simply the construction of a new marble laver at a cost of £23 7s. 3d., and as another account of the same date[b] gives 27s. 2d. as the cost "of a certain almery in the cloister on the right hand of the frater door," we get a total of £24 14s. 5d., which is very nearly the £26 5s.

There yet remains another point to be noticed, that whatever the fashion may

[a] *Historiæ Dunelmensis Scriptores Tres* (Surtees Society, vol. ix.), p. cclxxiii.

[b] *Ibid.* Appendix, No. cccxlvii. p. ccccxlv.

have been in the twelfth century, all the cloister lavatories of later date than the middle of the thirteenth century of which remains exist in English monasteries are invariably built of the long trough form against the inner or outer wall of the cloister alley, in the immediate neighbourhood of the frater door.

The plan of the Durham lavatory would accordingly indicate that it was a work of earlier date than the introduction of the other form, and I think it is possible to show not only that it can be little later than the Norman one, but how it came to be erected at all.

It has already been pointed out that the older lavatory was built against an earlier wall. Now there are reasons, too long to enter into here, for supposing that this wall belongs to the western alley of an earlier and smaller cloister than that existing, and if so the square lavatory stood in the south-west corner of it. But early in the thirteenth century a new western range of buildings was erected to the west of whatever then served as such, and so enabled the cloister to expand to its present form and size. The old western alley would then be taken down, and with it probably the square lavatory, and a new eight-sided lavatory, more in keeping with the enlarged cloister, be built in its stead.

This suggestion of an early thirteenth-century date for the new lavatory is confirmed by comparison with other like structures of similar plan and arrangement, but before describing these there is a further point of interest with regard to the Durham examples which had better be mentioned here.

In examining the several channels that intersect the recently exposed foundations it was seen that they all appeared to converge on a spot in the cloister near the reputed site of an old well; I accordingly obtained leave from Dr. Farrar, the canon-in-residence, the Dean being away, for the excavations to be extended in that direction.

The channel leading from the older lavatory was first traced, and found to extend in a straight line for a further 15 feet, when it ended abruptly against a stone. In its northern extremity lay another section of lead pipe, $3\frac{1}{2}$ feet long and $1\frac{3}{4}$ inch in external diameter, with the junction of a vertical upward continuation at its further end. A supposition that the channel would be found to lead to the well was negatived by the fact that its level rose gradually as it extended northwards from the square building, the difference of level in the 15 feet being a little over 1 foot.

From near the stone where the channel ended another channel leads off in a westerly direction, but this was not followed.

Search was next made for the well. This was soon found at a distance of about 3 feet from the pipe end, and immediately to the east of it. It is 4 feet in diameter, lined with ashlar, and surmounted by a plain coping, the stones of which are cramped together with iron cramps run in with lead. The top of the well was only just below the turf of the cloister. It has since been cleared out and found to be 47 feet deep. The lower part is sunk in the rock and now contains about 10 or 12 feet of water.

The questions next arise, what was the object of the rising channel in the garth, and of the adjoining well, and what possible connexion can there be between them? A reference to the Canterbury drawing noticed by Dr. Fowler not only makes all clear, but illustrates in a remarkably interesting way the methods used by the monks to obtain a constant supply of water.

The monastery of Durham, like that at Canterbury, was supplied with water from a conduit which stood, probably where its successor stands to-day, on the highest point of the precinct, a little distance due south of the abbey kitchen. The water was brought to this by pipes from a spring or springs on the other side of the river Wear, probably early in the thirteenth century, when the new octagonal lavatory was built, and was then distributed by gravitation through lead pipes to other conduits in different parts of the monastery, including that in the cloister.

Now the Canterbury drawing shows in the infirmary cloister, in addition to the still existing building of the head conduit, a smaller conduit or laver in front of the infirmary itself, which it supplied. Beside this is depicted a well (*puteus*) surmounted by a low wall of masonry, and between it and the laver is a pillar with a large capital and base.[a] This pillar is placed over the pipe that conveyed water from the overflow of the cloister laver to the infirmary laver, and its use is explained by the note:

> Columpna in quam ductu aque deficiente potest hauriri aqua de puteo et administrabitur omnibus officinis;

which may be translated:

> Pillar into which, when the water supply fails, water from the well can be poured and will be supplied to all the offices.

[a] I am indebted to Mr. Micklethwaite for reminding me of this interesting arrangement.

The capital of the pillar was therefore evidently a large funnel and the pillar itself a stand-pipe.

The arrangement at Durham must have been similar.

The lost vertical end, or rather beginning, of the lead pipe originated in such a pillar or *columpna* as that at Canterbury, from which water drawn from the well would flow by gravitation to the laver. The earlier laver was probably always so supplied before the water from across the Wear was brought into the abbey, but the older system was continued in time of need.

Of this there are several interesting proofs in the Durham account rolls that have lately been edited by Dr. Fowler, and to whom I am indebted for the reference.[a]

In the Bursar's Roll for 1338-9 is a payment of 8s. "to women carrying water from the Wear to the abbey for the bakehouse, brewhouse, and kitchen, at divers times when the pipe was frozen," and in the Roll for 1339-40 are the following items

To women carrying water for the brewhouse and bakehouse and kitchen in the week after the feast of the Purification because the pipe was frozen, 6s.

In drawing water from the draw-well in the cloister for the same, and for work about the pipe, 16d.

In cleaning the well within the Abbey, 2s.

[a] Notices of the Lavers and the Well in the Cloister-garth, in the Durham Account Rolls (Surtees Society, vols. xcix. c. ciii. 103):

1278.—In reparacione lavatorii ad hostium Refectorii, 7s.—*Rot. Burs.* p. 486.

1316-17.—In plumbo empto pro Lotorio Claustri, 13s. 11d.—*Ibid.* p. 513.

c. 1337.—In omnimodis expensis factis circa emendacionem Lotorii Conventus in Claustro, 10li. 9s. 4d. —*Ibid.* p. 535

1338-9.—Et mulieribus portantibus aquam de Were usque ad Abbatiam pro pistrina, Bracina, et Coquina per diversas vices quando pipa gelidata fuit, 8s. Mulieribus portantibus aquam pro bracina et pistrina et coquina in septimana post festum Purificacionis eo quod pipa fuit gelidata, 6s. In aqua Wyndanda de fonte tracticio in claustro ad idem, et pro opere circa pipam, 16d.—*Ibid.* p. 536.

1368-9.—In reparacione lavacrorum in claustro, 26s. 8d.—*Ibid.* p. 575.

1473-4.—Et pro 3 longe (*sic*) rapys, vidz. pro carecta, ustrino, et fonte in claustro, 4s. 4d.—*Ibid.* p. 644.

1557-8.—In factura unius hostii pro le lavers, 8d.—*Treasurer's Book, Ibid.* p. 715.

1570-1.—For mending a sink at the Lavers, 7s. 8d.—*Ibid.* p. 717.

1593.—Plumber's work ouer y^e^ douescott.—*Miscellanea, Ibid.* p. 735.

In 1473-4 one of three long ropes that cost 4s. 4d. was "pro fonte in claustro."

That the *columpna* was also used in connection with the later laver may perhaps be shown by the difference in the sizes of the remaining pieces of lead pipe, that belonging to the Norman laver being of larger diameter than the other.

In clearing out the well a number of interesting objects came to light, including:

(i) portions of a grave-cover of Frosterley marble, with an inscription to Henry of Horncastle, prior of Coldingham from before 1266 to after 1279;
(ii) three pinnacles of fifteenth-century work;
(iii) the lower portion of an image with boldly-cut drapery, with shoes on the feet;
(iv) some smaller fragments of sculpture;
(v) some thin bricks, measuring 9 inches by 5 inches, and 1 inch in thickness, with a black glaze, apparently floor-tiles;
(vi) fragments of pottery of various dates;
(vii) a great number of animals' bones; and lastly
(viii) the chain, hoops, and a few decayed wooden staves of the bucket.

Our paper would be incomplete without reference to such other examples of cloister lavatories in these islands as resemble those formerly at Durham in plan and arrangement.

Both of those shown in the Canterbury drawing as standing in the monks' cloister and the infirmary cloister respectively have disappeared; the latter at some uncertain date, the former when the cloister was begun to be reconstructed by Prior Chillenden at the close of the fourteenth century. The lower part of the Norman head conduit still exists, an octagonal structure that supported the great cistern and a laver for the use of the monks. The present upper story is another of Prior Chillenden's works, but the cistern and laver have long disappeared. The old lavatory in the monks' cloister seems to have been square, like the Norman one at Durham. Its sides were open arches, and its roof a tall pyramidal one covered with lead. The laver had an octofoil bason, with a pillar in the middle, surmounted by a second bason, into which the water was received from the head conduit. The infirmary lavatory was

of similar plan and design, but apparently smaller, with a single sexfoil bason. It should be noticed that the great conduit, although actually round in plan and eight-sided, is shown in the drawing as square; it is therefore possible that the other two lavatories were really of the same form also.

The remains of another lavatory were excavated some years ago in the cloister of the Cluniac Priory of Wenlock, Salop, by Mr. C. Milnes Gaskell. These consist of the foundations of an octagonal building 20 feet wide, which had on seven of its sides an arcade of two open arches carried by coupled columns; in the eighth side was the entrance from the cloister alley. Within the building is the base of a circular laver formed, like that of Durham, of the local marble. The trough was 11 feet in diameter and 7 inches thick, and was raised upon a circular wall 2 feet 4 inches high, faced with marble panels, two of which are richly sculptured. A low step encircles the whole, and a passage through the middle permitted access to the pipes. Of the bason that rose above the trough, a number of fragments remain, showing that it was elaborately carved outside and ornamented with a kind of arcade within. There are also some pieces of a second bason similarly decorated, but all the fragments of the superstructure are so shattered that although I have made more than one attempt with the actual pieces it is difficult at present to say how they were arranged. The work belongs to the closing years of the twelfth century, and is probably contemporary with the square lavatory formerly at Durham, but in plan it exactly illustrates what seems to have been that of the later Durham example.[a] In one corner of the building is a small well. "Le laver well" is also mentioned as existing at Ely in 1516-17.

A lavatory possibly of similar form to that at Wenlock stood in the cloister of another Cluniac Priory, that of Lewes in Sussex. All that now remains of it is an underground domed structure through which the pipes were brought. This was reached originally by a passage or tunnel from the subvault of the frater, which was built on a lower level than the cloister owing to a sudden fall of the ground. The Lewes lavatory was no doubt also of the twelfth century.

The only other example of these lavatories now standing is at the Cistercian abbey of Mellifont in Ireland. It was an octagonal structure, with a wide arched opening in each of its sides, and originally vaulted to a central pillar around which

[a] The Wenlock lavatory is fully illustrated, with plan and drawings by Mr. Roland W. Paul, F.S.A., in *The Builder* for 14th December, 1901 (lxxxi. 530, 531).

were the lavers. It had also an upper story to contain the cistern, and so probably also served as the head conduit of the abbey. Its diameter is stated to be 29 feet, but I have not yet been able to verify this. In date it seems to belong, like the later Durham example, to the beginning of the thirteenth century.

It only remains to express our best thanks to the Dean and Chapter of Durham for carrying out the excavations described in this paper; we also are much indebted to Mr. C. Hodgson Fowler, F.S.A., the cathedral surveyor, for the loan of the excellent plans, sections, and drawings of the remains discovered, which have also formed the basis of the accompanying illustrations. The photographs reproduced were taken from the cloister roof by Mr. J. R. Edis, of Durham.

APPENDIX.[a]

COMPOTUS DOMINI THOMÆ AYERE (REFECTORARII *in dorso*) SUPERVISORIS OPERIS CUJUSDAM NOVI LAVATORII MARMORIS IN CLAUSTRO DUNELMENSI DE RECEPTIS ET EXPENSIS ANNO DOMINI MILLESIMO CCC^{mo}XXX^{mo}II^{do} ET III^{o}.

RECEPTA.

In primis idem respondet de xviij^{li}. vj^{s}. viij^{d}. receptis de conventualibus et quibusdam aliis per manus dominorum W. Partryke et W. Dalton, ut patet per capita huic cedulæ annexa.

Item idem respondet de v^{li}. vij^{d}. receptis de diversis officiariis infra et extra, ut patet in eadem cedula.

Summa omnium receptorum xxiij^{li}. vij^{s}. iij^{d}.

EXPENSÆ.

In primis idem computat in denariis solutis Thomæ Hyndley cementario pro lucracione petrarum marmorearum in querrura de Eglyston, ut patet per compotum suum ciij^{s}. x^{d}.

Item in denariis solutis eidem Thomæ pro tractacione extra querreram, pro scapulacione, et waynyng dictarum petrarum, ut patet in dicto compoto suo xlij^{s}. j^{d}.

Item in denariis solutis Abbati de Eglestona pro ferma querreræ prædictæ, per tempus predictum, xx^{s}.

Item in denariis solutis eidem Thomæ pro dolacione petrarum marmorearum, una cum solucione facta Roberto Nurry super factura unius logæ in cimitario Dunelmensi pro dictis petris operandis, ut patet in dicto suo compoto, cx^{s}. iij^{d}.

Item eidem Thomæ, ex præcepto Prioris, iij^{s}. iiij^{d}.

Item eidem pro una corda empta ad opus prædictum, ij^{s}. vj^{d}.

[a] *Historiæ Dunelmensis Scriptores Tres.* Appendix No. CCCXLVI. p. cccexliii. In the printed, as probably in the MS. version of this, the items run on, but they are here printed separately for greater convenience of reference.

Item eidem Thomæ pro suo regardo ex convencione, xl^{s}.

Item Nicholao Wryght pro uno pare rotarum, x^{s}. iiij^{d}.

Item Ricardo fabro pro ferrura unius paris rotarum, iiij^{s}.

Item pro cariacione trium lapidum marmoreorum a prædicta querrera usque Dunelmum, xxviij^{s}. iiij^{d}.

Item Johanni Pykyryng cementario pro decem septimanis, capienti per septimanam, iij^{s}., xxx^{s}.

Item eidem Johanni pro tribus septimanis, capienti per septimanam, ij^{s}. vj^{d}., vij^{s}. [*sic*]

Item Johanni Fethyrstanhalgh pro quinque septimanis, capienti per septimanam, iij^{s}., xv^{s}.

Item eidem Johanni pro sex septimanis, capienti per septimanam, ij^{s}. vj^{d}., xv^{s}.

Item Johanni Tyndall pro una septimana, iii^{s}.

Item Johanni Knaythe pro una septimana, iij^{s}.

Item Johanni Pykyryng cementario pro opere suo per vices, xij^{d}.

Item Thomæ plumbario pro labore suo circa opus prædictum, x^{s}.

Item Laurencio latonerio de Novo Castro pro factura le spowtys, ix^{s}.

Item Willelmo sclater pro le blaunchyng per duos dies, viii^{d}.

Item Waltero Hurde pro opere suo ex curialitate, xij^{d}.

Item Thomæ Brake pro factura ij punchons cum sharpyng et layying, xvj^{d}.

Item in calabe empto, iij^{d}.

Item pro cariacione lapidum a querrera, xij^{d}.

Item Willielmo Mayn pro cariacione unius fodræ a Beurepayr, vj^{d}.

Item in uno quarterio calcis, viij^{d}.

Item in iij paribus cirothecarum datis diversis, iiij^{d}. ob.

Item in j fother luti, viij^{d}.

Item in sarracione tabularum pro le pentees in introitu, vj^{d}.

Item uno carpentario pro opere suo circa le pentees, xiiij^{d}. ob.

Item in clavis emptis ad dictum opus, vj^{d}.

Item Thomæ plumbario pro opere suo circa opus prædictum, xij^{d}.

Summa omnium expensarum xxiij^{l}. vij^{s}. iij^{d}. et sic æque.

Memorandum quod idem dominus Thomas Ayere sumptibus propriis fieri fecit aqueductum currentem in Cellarium.

Recepta de Lavacra.

Supprior vj^{s}. viij^{d}.

Johannes Durham, senior, iij^{s}. iiij^{d}.

Thomas Essh vj^{s}. viij^{d}.

Johannes Gysburn iij^{s}. iiij^{d}.

Johannes Fychburn vj^{s}. viij^{d}.

Willielmus Durham vj^{s}. viij^{d}.

Rogerus Langchestyr vj^{s}. viij^{d}.

Johannes Swnsyd vj^{s}. viij^{d}.

Thomas Morby vj^{s}. viij^{d}.

Henricus Feriby vj^{s}. viij^{d}.

Henricus Helay xx^{s}.

Johannes Gonerton vj^{s}. viij^{d}.

Johannes Durham, junior, vj^{s}. viij^{d}.

Ricardus Barton vj^{s}. viij^{d}.

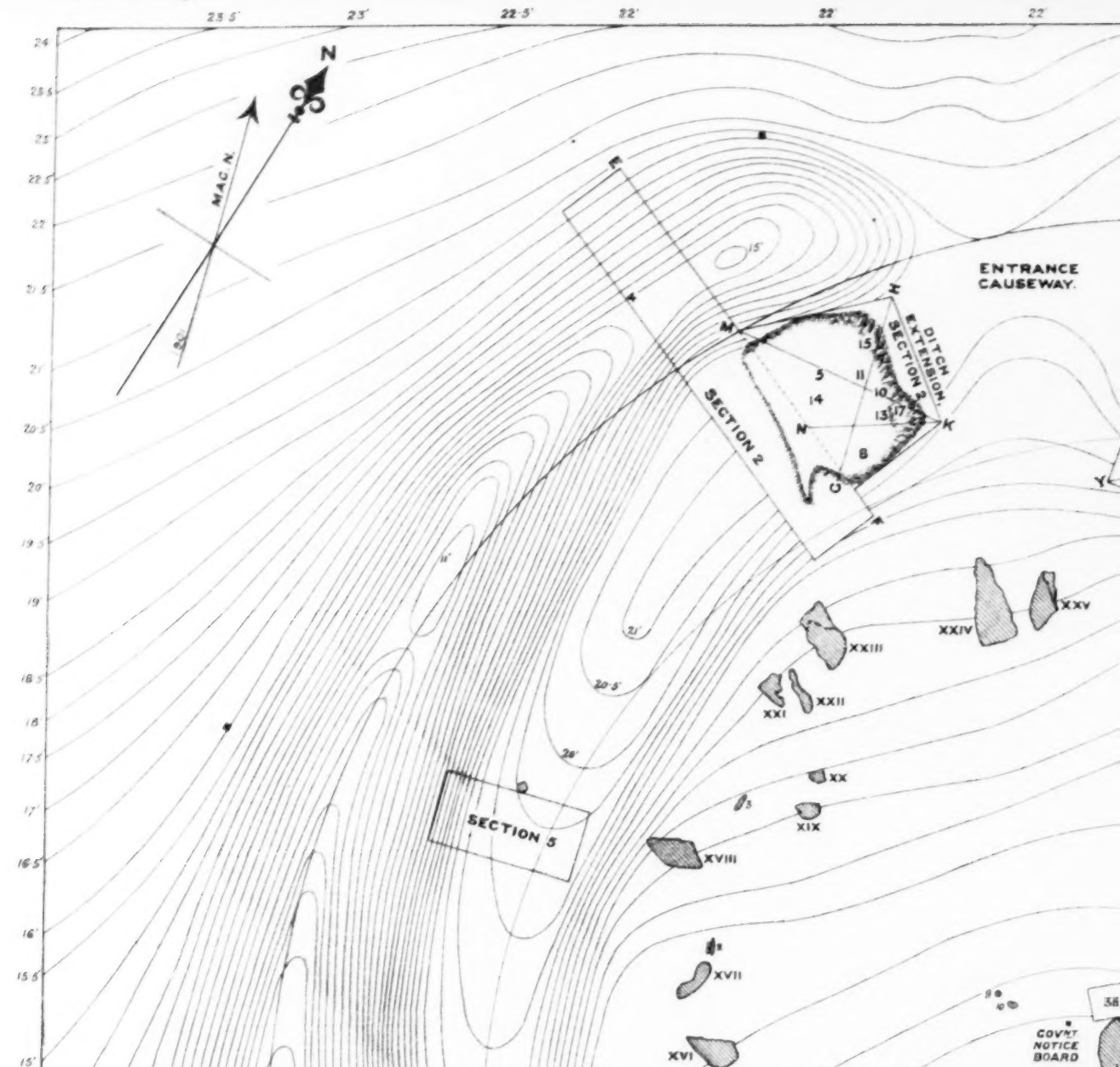
Thomas Nesbet iij^{s}. iiij^{d}.

Johannes Durward iij^{s}. iiij^{d}.

Georgius [*ita*] iij^{s}. iiij^{d}.

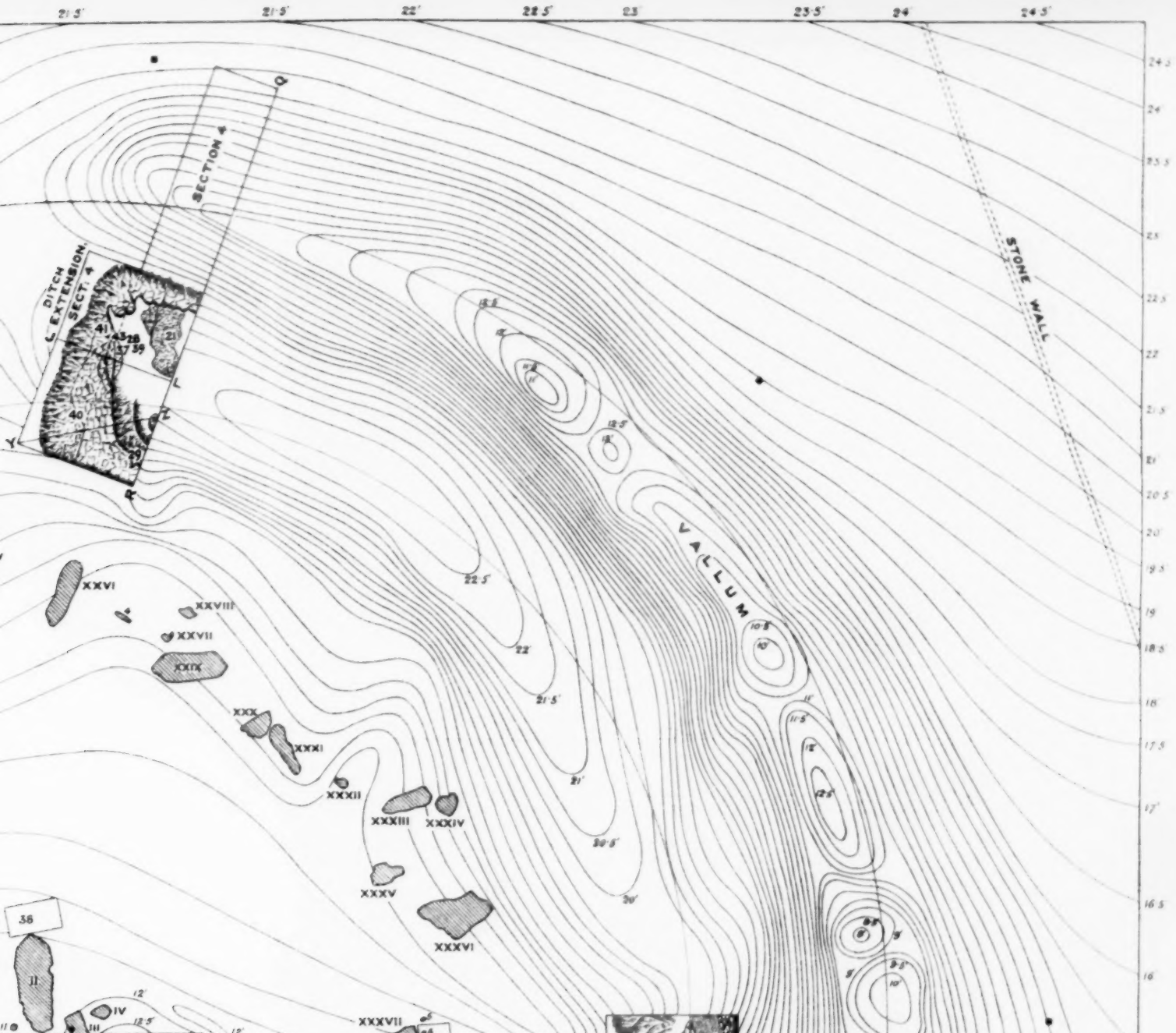
Johannes Barlay vj^{s}. viij^{d}.
Willielmus Lyam vj^{s}. viij^{d}.
Thomas Ayre vj^{s}. viij^{d}.
Johannes Oll vj^{s}. viij^{d}.
Willielmus Partryke vj^{s}. viij^{d}.
Thomas Lawson iij^{s}. iiij^{d}.
Thomas Hexham iij^{s}. iiij^{d}.
Thomas Ward vj^{s}. viij^{d}
Robertus Areow vj^{s}. viij^{d}.
Thomas Furth vj^{s}. viij^{d}.
Johannes Byrtle iij^{s}. iiij^{d}.
Johannes Heworth iij^{s}. iiij^{d}.
Johannes Warnar iij^{s}. iiij^{d}.
Thomas Lwyn iij^{s} iiij^{d}.
Johannes Qweldporyge iij^{s}. iiij^{d}.
Robertus Scrimerston iij^{s}. iiij^{d}.
Willielmus Drax Prior de Koldyngham xl^{s}.
Willielmus Ebchestre Prior de Insula x^{s}.
Johannes Mody Prior Oxoniensis vj^{s}. viij^{d}.
Johannes Wycleff Prior de Stawmforth vj^{s}. viij^{d}.
Ricardus Hessewell xiij^{s}. iiij^{d}.
Thomas Pryston, in parte solucionis corrodij sui, iiij^{li}.
Johannes Fychborn xl^{s}.
Johannes Durham, junior, iij^{s}. iiij^{d}.
Elemosinarius, pro vino in ij ludis Prioris, viij^{s}.
Camerarius pro eisdem ludis viij^{s}.
Hostilarius pro vino in eisdem ludis x^{s}.
Sacrista pro vino in uno ludo iiij^{s}.
Comunarius pro vino in eodem ludo iiij^{s}.
Johannes Oll bursarius xv^{s}.
Willielmus Partryk vj^{s}. viij^{d}.
Willielmus Dalton vj^{s}. viij^{d}.
Johannes Gatsyd vj^{s}. viij^{d}.
In xviij petris plumbi venditis viij^{s}. iij^{d}.

The account is not summed up, but the total comes to £23 7s. 3d.



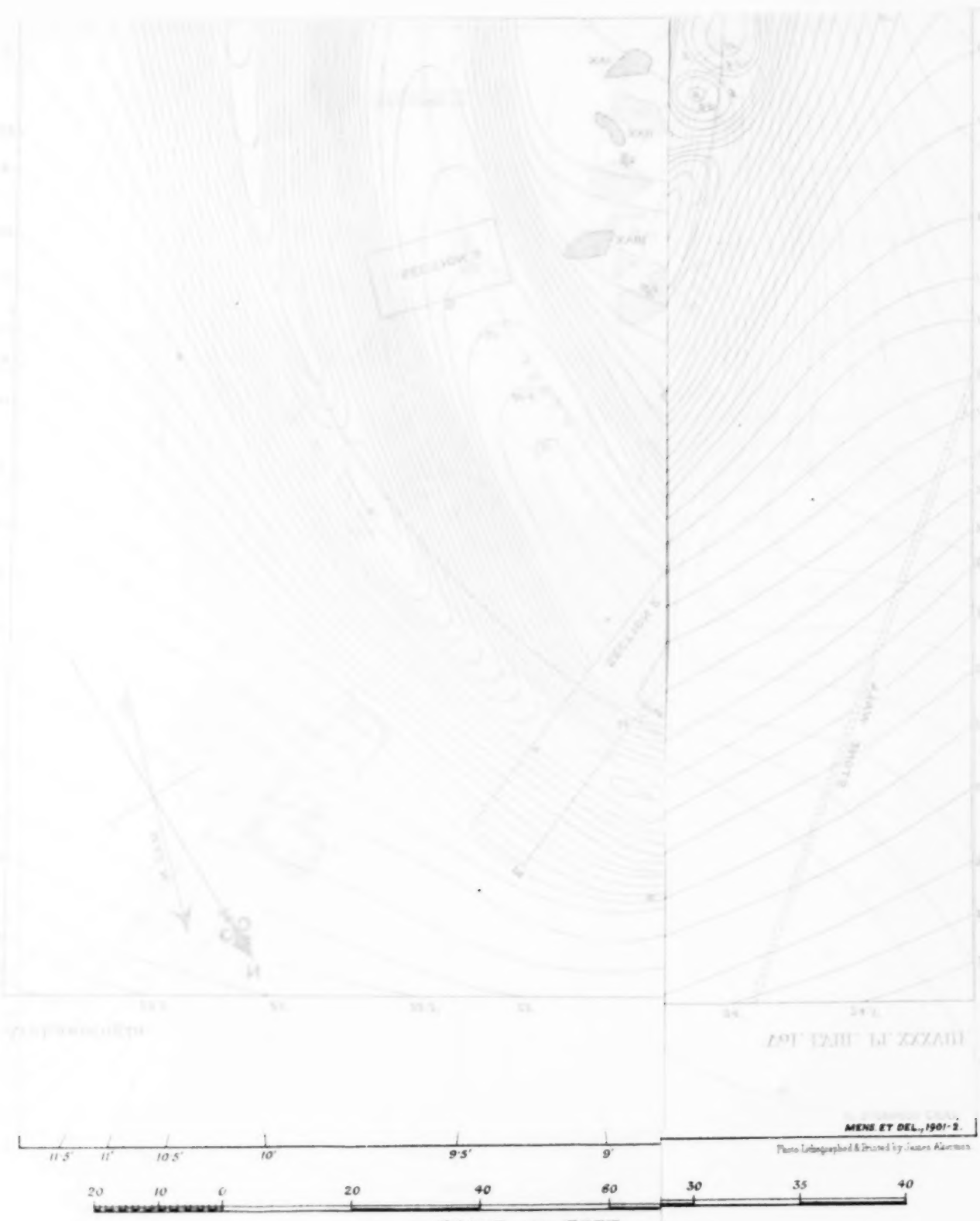
PLAN OF THE ARBOR LOW

Published by the Society



...LOW STONE CIRCLE, DERBYSHIRE.

...the Society of Antiquaries of London, 1903



MENS ET DEL., 1901-2.

Photo Lithographed & Printed by James Akerman.

PLAN

XXI.—*On the Excavations at Arbor Low*, 1901-1902. *By* H. St. George Gray, *Esq.*

Read 2nd April, 1903.

It is my privilege to bring before you the results of the recent exploration of the Arbor Low Stone Circle. These excavations, organized by the Anthropological Section of the British Association, and carried out in 1901 and 1902, were conducted with a view of ascertaining the age of Stone Circles, a beginning, possibly, of a series of such explorations. The Committee appointed to control this work consisted of Dr. J. G. Garson (Chairman), Mr. Henry Balfour (Secretary), Sir John Evans, Mr. C. H. Read, Professor R. Meldola, Mr. Arthur J. Evans, Dr. R. Munro, Professor Boyd Dawkins, and Mr. A. L. Lewis. The actual organization and direction of the work in the field was placed in my hands. The ground landlord, the Duke of Rutland, K.G., the First Commissioner of Works (in whose charge, under the Ancient Monuments Act, the Circle is placed), and the tenant,[a] readily gave their consent for the conducting of the exploration.

In relation to Stone Circles generally,[b] Arbor Low comes under the heading of those consisting at present of separate megaliths, which, whether single or multiple, are themselves enclosed by an independent vallum and fosse. Other examples are seen at Avebury, in Wilts; at Blisland, in Cornwall, where it has been recorded the fosse is 11 feet (3·35 m.) and the vallum 10 feet (3·05 m.) wide; at Stennis, in the Orkneys,[c] where the vallum is 3 feet (91 cm.) high; and at the neighbouring

[a] J. J. Warrilow, Green Croft Farm, Middleton.

[b] Arbor Low is, as a rule, considered to rank as the fourth circle in order of importance in England.

[c] Figured in Fergusson's *Rude Stone Monuments*, 242.

Ring of Brogar, where the ditch remains, but the wall, which may have been only a stockade, has disappeared.[a] The monument of Arbor Low is very similar in design to "Arthur's Round Table," in Cumberland,[b] excepting that the vallum of the latter is divided from the fosse by a berme. Arthur's Table, however, does not include any stones.

Arbor Low is situated at a distance from the beaten track of the tourist, in one of the most sparsely-inhabited districts of Derbyshire, in the parish of Bakewell, from which town it is barely 5 miles distant in a direct line, in a south-westerly direction. The nearest railway station, however, is Parsley Hay, only 1 mile to the north-west, on the Buxton and Ashbourne branch of the London and North Western Railway. Hartington is $2\frac{3}{4}$ miles to the south-west of Arbor Low, Youlgrave 3 miles to the east, Middleton $2\frac{1}{4}$ miles to the south-east, and Monyash 2 miles to the north. The monument, which is situated on a long ridge of hill, nearly 1,200 feet above the sea-level, commands a most extensive view towards Buxton and Bakewell, in northerly and easterly directions.

The operations extended over 14 working days, 8th—23rd August of 1901, and 10 days in May—June of 1902. The working plan (Plate XXXVIII.) was begun on the first day.[c] A square, 320 feet (98 metres) on each side, was formed round the vallum, enclosing an area of $2\frac{1}{3}$ acres, and the plan of the stones was begun to a scale of 240 to 1; in other words, 20 feet to an inch.[d] The exact position of each stone was taken by means of bearings and triangulation from fixed points, checked by cross-measurements. The plateau on which the megaliths lie averages 160 feet (49 metres) in diameter and is encompassed by a fosse. It will be seen that the figure formed by the ring of stones is pear-shaped, the bottom of the pear to the south-east, the stalk end to the north-west. It consists of rough unhewn slabs of mountain limestone, of which many of the largest average 10 feet (3·05 m.) in length by $4\frac{1}{2}$ feet (1·37 m.) in breadth: they are of variable thickness, extremely irregular in form, decayed, and somewhat fractured; with one exception (No. XVI.), and without considering No. VI., which is tilted up between Nos. V. and VII., and no doubt originally formed part of No. VII., all lie upon the ground,

[a] Fergusson's *Rude Stone Monuments*, 241-2.

[b] *Op. cit.* 128.

[c] Full particulars as to the construction of a relief model of Arbor Low, the result of these excavations, will be found in *Man*, for October, 1903 (published by the Anthropological Institute), where illustrations are given of it, at three different stages in its manufacture.

[d] The surveying instruments of the late General Pitt-Rivers were kindly lent by Mr. A. E. Pitt-Rivers, F.S.A.

many in an oblique position, all more or less recumbent. It will be noticed at the first glance at the plan that nearly all the stones lie more or less in the direction of radii of the circle. In giving numbers to the stones (Nos. I. to XLVI. on plan) they are simply numbered to facilitate reference and to distinguish one from another in speaking of them. Some of the very small stones and stumps have been numbered separately (Nos. 1 to 13). Fragments of stones in the ditch and near the southern causeway have not been numbered. The position and slope of the stones, individually, are extremely varied: the majority lie in shallow depressions, although some are quite on a level with the general turf line; others, again, are surrounded by slight mounds, the turf in many cases growing round and over the sides of the stones. The longest stone (No. II.), which measures 14·2 feet (4·32 m.) in length, is in the centre of the circle, whilst the widest (No. I.), 8·6 feet (2·59 m.) in width, is also in the centre.[a] The largest stone in the circle is No. X., the length of which is 13 feet (3·96 m.), and the width 6·2 feet (1·88 m.). As stated before, there is one exception to the stones being recumbent, and that is No. XVI. on the west side (see photograph, Plate XXXIX. fig. 2), which leans towards the north-east at about 35 degrees or 40 degrees with the surface of the surrounding turf; at its highest part it is 3½ feet (1·07 m.) from the depression in which it stands.[b]

Dr. Pegge, writing in 1783,[c] says that "the stones formerly stood on end, two and two together, which is very particular." Glover, in his *History of the County of Derby* (1829), states that "Mr. J. Pilkington was informed that a very old man living in Middleton, remembered when a boy to have seen them standing obliquely upon one end;" tersely adding that "this secondary kind of evidence does not seem entitled to much credit." One of my excavators, an old man, assured me that he had seen five stones standing in his boyhood, and had sheltered under them! On inquiry, however, I ascertained that the man had a reputation for gross exaggeration. The Rev. S. Isaacson, writing in 1845, was of opinion that "these stones were never placed in an erect position." He says further that "the imported stones all appear to be resting on the native rock, the comparatively thin covering of soil having accumulated through the lapse of centuries." Gardner Wilkinson, on the other hand, in 1860, says "it is evident that they originally stood upright, as in other sacred circles." Lord Avebury, writing some twenty-four years ago, stated cautiously, "It is doubtful whether they were ever upright."[d]

[a] The central stone No. I. is seen in the photograph, Plate XXXIX. fig. 2; see also Fig. 3.

[b] Detailed particulars of the stones are given in Appendix III.

[c] *Archaeologia*, vii. 142.

[d] *The Reliquary*, xx. 81-85, with view and woodcuts.

As recently as 1899, Dr. Brushfield appeared to be of opinion that the stones originally stood upright; and Mr. A. L. Lewis is of the same opinion.[a]

The original number of the stones has been variously estimated, and Dr. Brushfield has summarised the opinions of previous writers in the volume for 1900 of the *Journal of the British Archæological Association*.

The published plans of Arbor Low are for the most part far from correct, Sir Gardner Wilkinson's plan, figured in two places, being the only exception.[b] In this small plan the position of the circle of stones is fairly correct, although there are several discrepancies in the proportional sizes of the stones. Pegge represents the megaliths as forming a true circle, and speaks of his plan as being "sufficiently accurate."[c] Glover includes what is styled "an engraving copied from an *accurate*[d] drawing by Mr. Mitchell."[e] It could not well be more inaccurate.

The area or plateau enclosed by the fosse presents an uneven surface, but the contours across this part of the plan have been delineated to follow the general slope of the ground, and not to mark, in this part, every little depression or slight elevation as it occurred. The contours of 6 inches vertical height show the shape of the monument and its immediate surroundings within the "square." The highest contour comes on the top of the tumulus on the south-east rampart; the lowest, at the north corner of the survey, a fall of 24½ feet (7·47 m.) in the ground from top to lowest part. It is not unusual to take levels on fixed lines giving contours of 1 or 2 feet (30·5 or 61 cm.) vertical height and to fill in intermediate contours, if necessary, by the eye; but to ensure absolute precision, to show the little knolls and depressions on the vallum at the south-west, north, and east, to mark the irregularities made by Mr. T. Bateman on the summit of the tumulus,[f] to indicate the little dyke running in a southerly direction from the vallum, it was desirable that all the 6-inch contours should be surveyed severally, which entailed the necessity of taking some eighteen hundred levels.[g]

[a] *Man* (Anthropological Institute), September, 1903, No. 76

[b] *Journal of the British Archæological Association*, xvi. plate 9; and Fergusson's *Rude Stone Monuments*, 140.

[c] *Archæologia*, vii. 148.

[d] The italics are mine.

[e] Stephen Glover, *History of the County of Derby*, i. 275-6.

[f] See photograph, Plate XXXIX. fig. 2.

[g] Carefully contoured plans of ancient earthworks will be found to be of great importance to future explorers, for the contours will afford reliable evidence of the shape of earthworks when the plans were made, and will record any subsequent mutilations that may intervene.

The periphery of the crest of the rampart constitutes almost a true circle, with a diameter of exactly 250 feet (76·2 m.), as shown by the outer circle described on the plan. (Plate XXXVIII.) The centre of the circle comes near the middle of the south-west side of Stone No. III. of the central group. (See black spot on Stone III., plan, Plate XXXVIII.) The crest of the vallum deviates very slightly in any part from the true circle, excepting on the north-west, where it bulges out. The bottom of the fosse, as seen on the surface of the silting, declines from the line of the true circle far more than the rampart, as shown by the inner circle described on the plan, with a diameter of 190 feet (58 metres). The only segment of this circle that can be said to be true is on the south, south-west, and west. The ditch is thrown out far more than the rampart to the north and north-west, but it would not be expected to find that the fosse had silted up regularly and symmetrically all round; whereas the crest of the rampart, of course, is much about in the same position as it was at the age of construction.

The ditch is marked by a depression from the original surface all round averaging 5½ feet (1·68 m.), and it is surprising that in the course of all these ages it should not have silted up to a greater extent.

The average height of the vallum above the general surrounding turf-level, as shown by the contours, is, on the outside, 7 feet (2·13 m.); its height above the central plateau, about 6 feet (1·83 m.). The average vertical height from the crest of the vallum to the surface of the silting of the fosse is 12 feet (3·65 m.). These dimensions have been much exaggerated by successive writers on Arbor Low. Pegge, however, in 1783, was perhaps the most correct, when speaking of the "circular rampire measuring by its inward slope, seven yards high, and by the outward five."[a] Subsequent writers have copied these dimensions, I fear, without personally checking them, and not bearing in mind that Dr. Pegge took his measurements of the height of the vallum on the slope, and not vertically. Succeeding accounts give these measurements on the slope as being vertical measurements, and as recently as 1900 the average height of the vallum has been recorded as 16 feet (4·88 m.) above the surrounding level.[b]

Judging from those portions of the fosse already re-excavated, the material obtained from the fosse when it was first excavated was not enough to complete the construction of the vallum. The confines of the vallum are bounded at various points by ten small governmental stones, indicated by small black squares

[a] *Archæologia*, vii. 142.

[b] Dr. Brushfield on "Arbor Low," *Journal of the British Archæological Association*, N.S. vi. 129.

on the plan (Plate XXXVIII.). The continuation of the ditch and rampart is interrupted on the north-west and south-east by the entrance causeways, which are not in line with the central group of stones. The causeways are on the same general level as the area occupied by the megaliths and the surrounding land. The circumference of the rampart, including the entrances, is about 805 feet (246 metres.)

The vallum is joined on the south-west by a slightly raised bank about 1½ foot (45·7 cm.) high, and an almost imperceptible "silted-up" ditch,[a] which run for some distance in a southerly direction, and about which there have been various theories. Some writers have connected this so-called "serpent" with Gib Hill, a tumulus at a distance of 1,043 feet (318 metres)[b] from the centre of Arbor Low (Plate XXXIX. fig. 1). Gib Hill was unsuccessfully dug into about 1812, and again by William Bateman in 1824,[c] when a few stone implements appear to have been found. In January, 1848, Thomas Bateman made a more thorough examination of the mound, when he discovered a cist, the top stone of which was only 18 inches (45·7 cm.) from the apex of the tumulus, containing a cremated interment in a small urn of Bronze Age type.[d]

On the south-east, adjoining the external face of the vallum and partly resting on it, a tumulus stands, the summit 7½ feet above the surrounding turf-level (see photograph, Plate XXXIX. fig. 2). This barrow was first attacked in 1770 by the then occupier of the farm, without success. Likewise in 1782 by Major Rooke, assisted by John Manders, and in 1824 by William Bateman and Samuel Mitchell of Sheffield. A fourth attempt made in 1845[e] by Thomas Bateman and Rev. S. Isaacson resulted in the discovery of a limestone cist, which has been frequently described.[f] It contained calcined human bones, a bone pin,[g] pyrites and flint, and two small urns,[h] differing considerably in style and ornamentation, but undoubtedly of Bronze Age manufacture, and probably rather early in that

[a] It can be just seen on the left of the photograph (Plate XXXIX. fig. 1), running in the direction of the wall.

[b] According to my tape measurement.

[c] Bateman's *Vestiges of the Antiquities of Derbyshire*, 31.

[d] Bateman's *Ten Years' Diggings*, 17-20.

[e] 23rd May and 16th June, 1845.

[f] "Arbor Low," by Sir John Lubbock, *The Reliquary*, xx. 81-85. Bateman's *Vestiges of the Antiquities of Derbyshire*, 64-66 and 74; and Winchester Volume of the British Archæological Association (1845), 197-204.

[g] Figured in Fergusson's *Rude Stone Monuments*, 141.

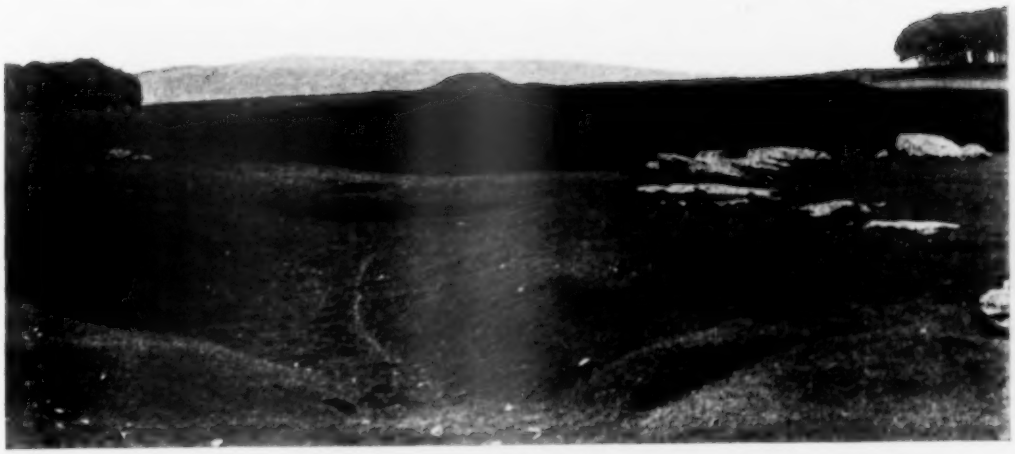


Fig. 1. General view of the southern and western part of Arbor Low, from the tumulus on the south-east vallum looking westward.

Fig. 2. General view of the southern half of Arbor Low, taken from the crest of the vallum on the west.

period.[8] These urns are figured in the accompanying illustrations, Figs. 1 and 2.

Fig. 1. Urn found in cist of tumulus on the south-east vallum of Arbor Low. (Bateman Collection.)

Fig. 2. Earthenware pot found in cist of tumulus on the south-east vallum of Arbor Low. (Bateman Collection.)

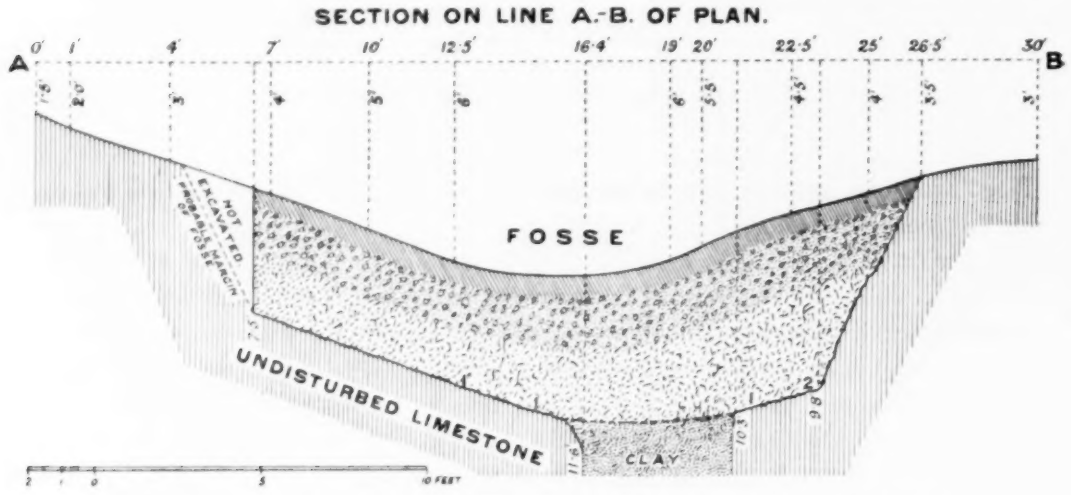
Fig. 1 was found filled with burnt bones. It is unusually wide and low: $4\frac{1}{2}$ inches high, 9 inches diameter at top, 4 inches diameter at base. The other pot, Fig. 2, found with it, is $4\frac{3}{4}$ inches high, $5\frac{1}{2}$ inches diameter at top, 3 inches at bottom. In June, 1845, the digging of this tumulus was resumed, but nothing further was discovered beyond a few pieces of deer-horn. Mr. Bateman never took the trouble to fill-in his excavation properly, the result being that four or five little knolls exist round the top of the tumulus, bounding a rather deep depression in the centre (see photograph, Plate XXXIX. fig. 2). In addition to this, he threw some of his débris into the ditch, clearly shown in the plan, Plate XXXVIII., and photograph, Plate XXXIX. fig. 1. The formation of this tumulus, which is probably of somewhat later date than the vallum, has caused a gap to occur in the vallum on either side of the mound. There is also another irregularity in the form of the rampart to the north of the tumulus, caused by a kind of spur which extends halfway across the fosse. All along the crest of the eastern and the north-eastern vallum are irregular depressions, sufficient material for filling which may be observed at intervals in ledges and patches along the base of the inner side of the east and north-east vallum, or, in other words, along the outer edge of the fosse in these parts. The only feasible explanation for this seems to be that Messrs.

[8] These relics are in the Sheffield Museum. The urns are here reproduced by kind permission of Mr. E. Howarth, the curator.

Bateman and Isaacson, elated by their success in finding the interment in the tumulus close to, pursued their investigations along the adjacent crest of the vallum at intervals, shovelling the material inwards down the slope of the rampart.

Excavations in the Fosse.

The excavations* were begun on 8th August, 1901, by making a cutting, called Section 1, through the ditch, 12 feet (3·66 m.) wide, close up to the south-south-east causeway. Roman remains were looked for under the turf, but without success. The only finds here were thirteen teeth of ox ("1" on plan and section),



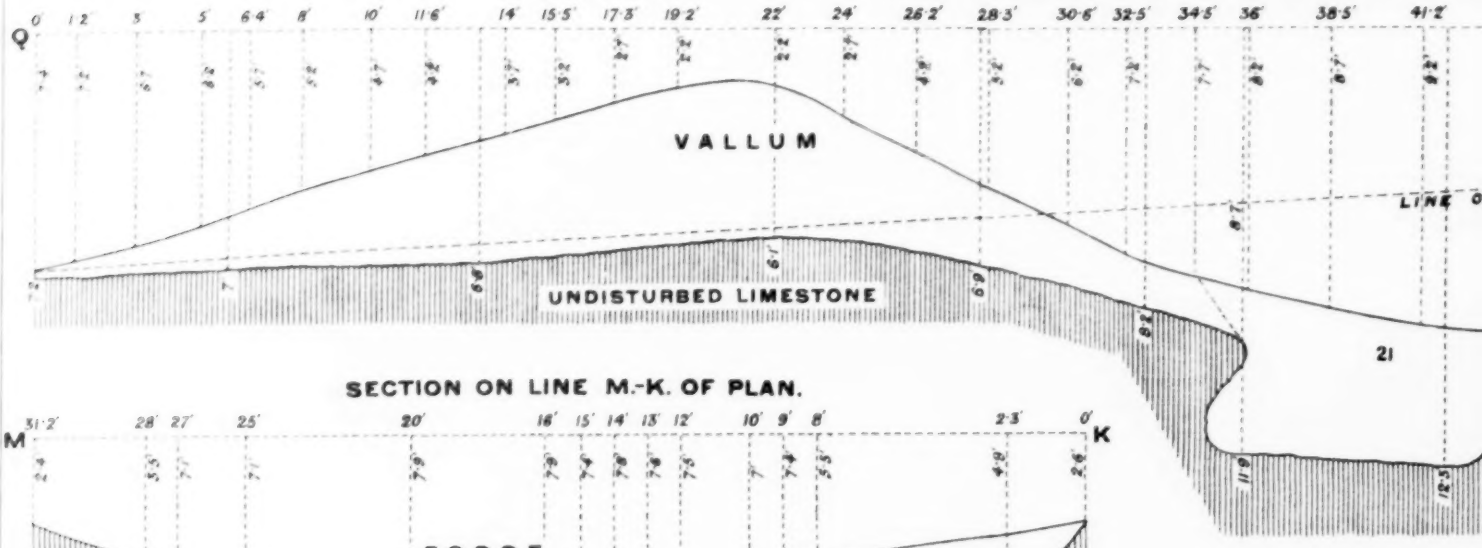
For "References to Soils," see Sections, Plate XL. The larger figures represent the numbered "finds."

strewn on the limestone floor at the bottom, and at a depth of 5·4 feet (1·65 m.) pieces of red-deer's antler, one piece 15 inches long (38 cm.), found resting against the rock-side of the ditch on a solid vein of clay, running through the limestone floor ("2" on plan, Plate XXXVIII., and the accompanying section). It appears

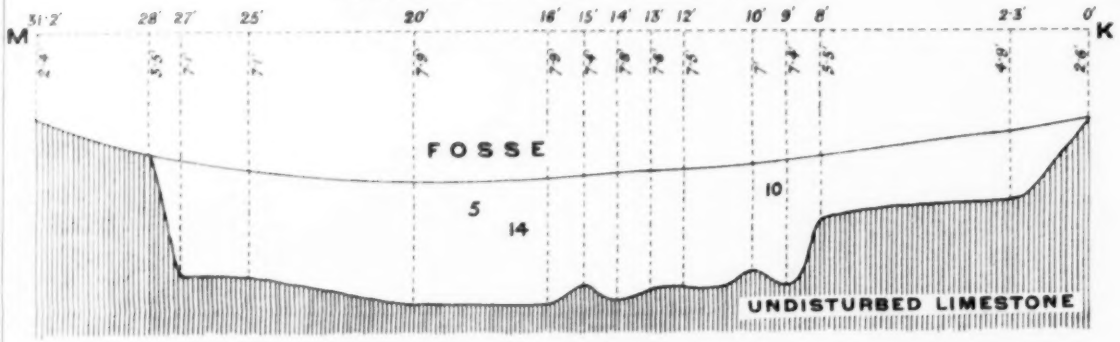
* It appears to me advisable to register the names of the workmen employed during these excavations, as such a record might prove to be of some little importance in the event of a further examination of Arbor Low taking place during the first half of the present century: 1901 and 1902, Bennett Dawson, John Shimwell, and Frank Pursglove, of Middleton; and Charles Millington, of Monyash. 1901, Charles Brassington and Francis Fearn (boy), of Middleton; and John Evans, of Youlgrave. 1902, George Hayward and Fearn (brother of above), of Middleton; Charles Birds, of Youlgrave; and Caleb Millington and Solomon Bembridge, of Monyash.

UNDISTURBED LIMESTONE
FOSSE
FOSSE

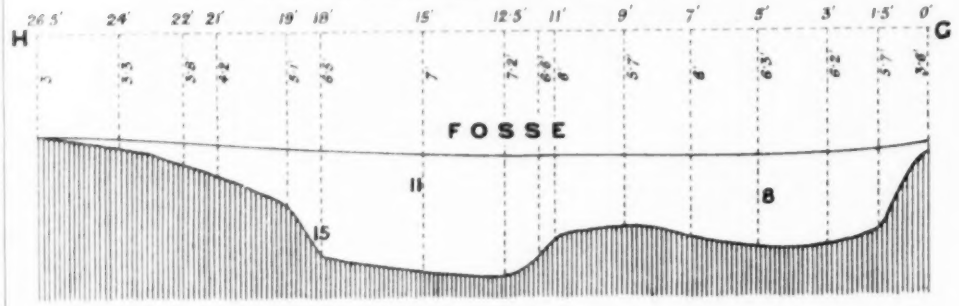
SECTION ON LINE Q.-R. OF PLAN.



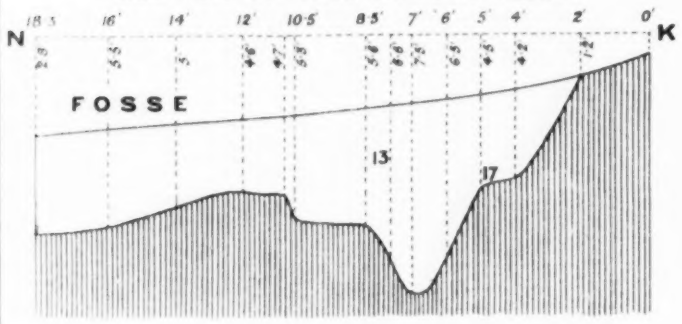
SECTION ON LINE M.-K. OF PLAN.



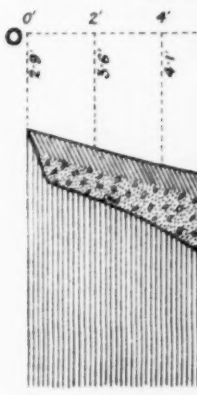
SECTION ON LINE G.-H. OF PLAN.

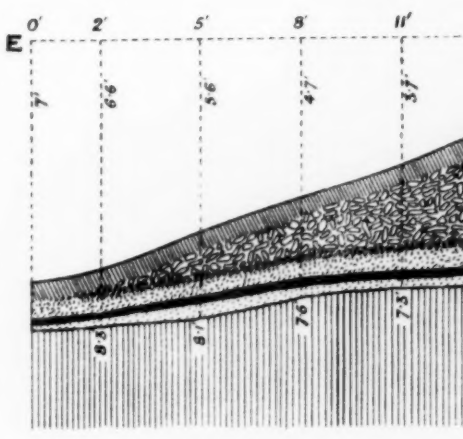


SECTION ON LINE N.-K. OF PLAN.

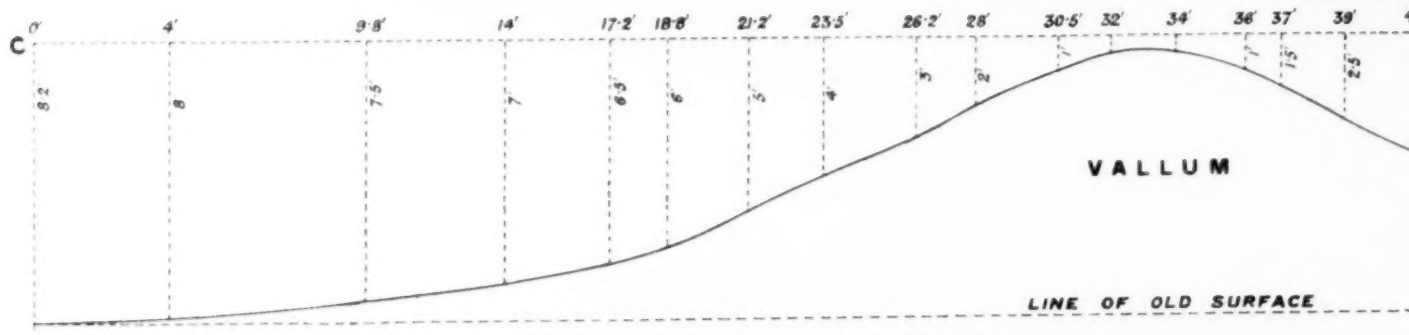


SEC





SECTION



REFERENCES TO SOILS.

MOULD AND TURF MOULD.

OLD SURFACE LINE.

YELLOWISH-BROWN CLAYEY MOULD.

UN

THIN-BEDDED LIMESTONE WITH A LITTLE MOULD.

BAND OF SMALL PIECES OF CHERT.

LIGHT YELLOWISH-BROWN SAND. (SECT. E.F.)

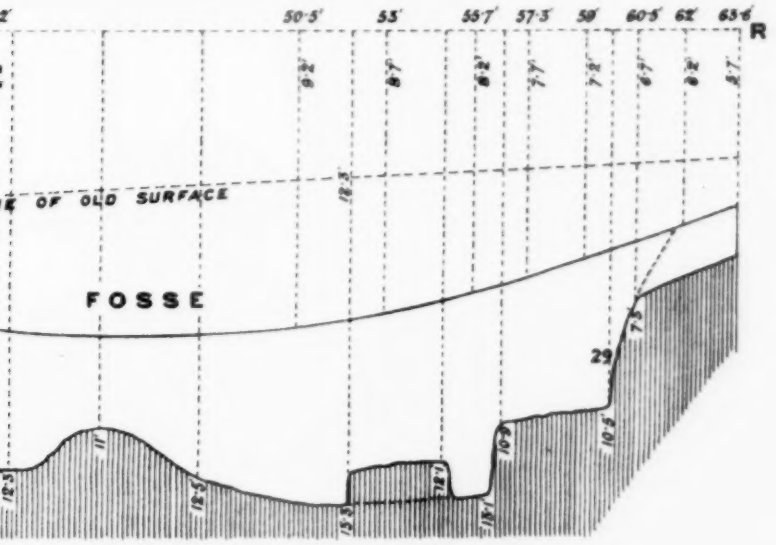
MO FR

SCALE OF FEET.

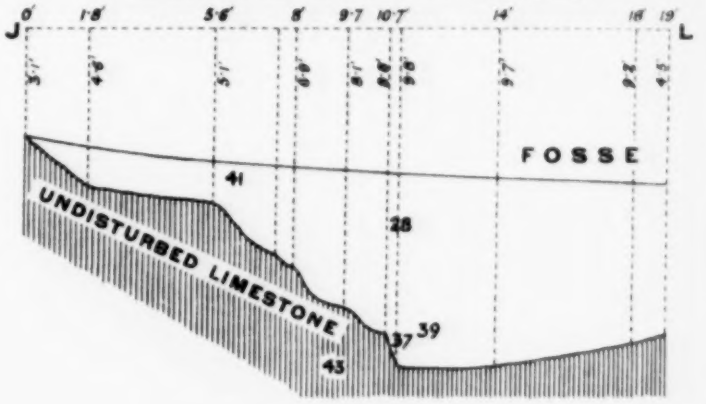
5 4 3 2 1 0 5 10 15 20 25 30 35

ARBOR LOW STONE CIRCLE. —

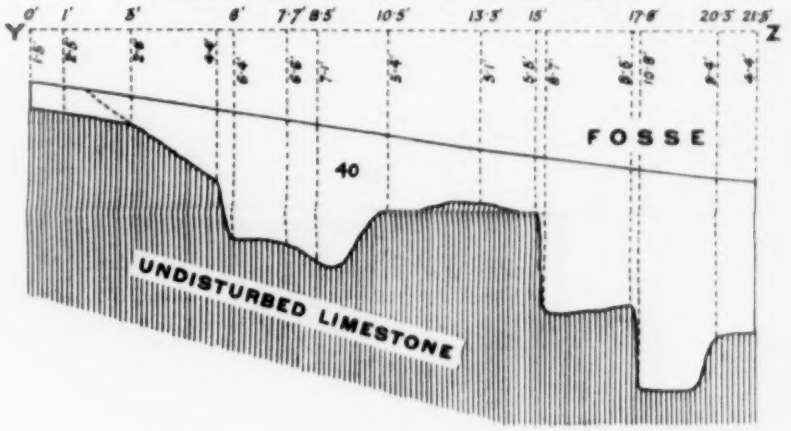
Published by the So



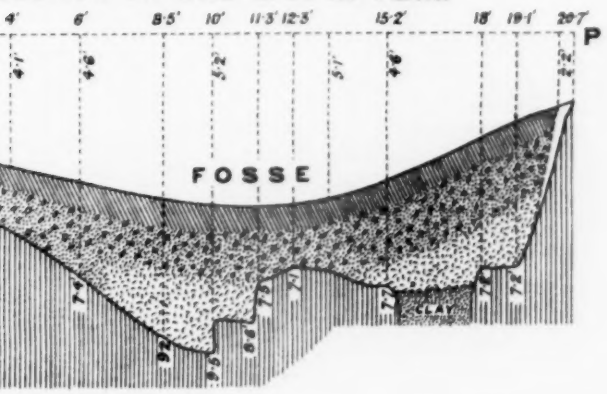
SECTION ON LINE J.-L. OF PLAN.



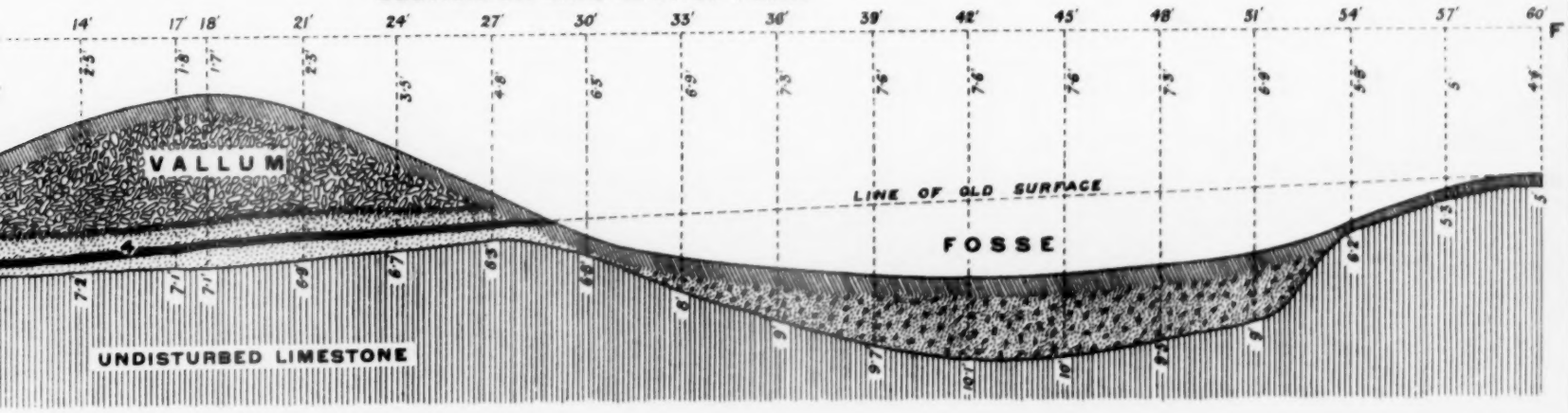
SECTION ON LINE Y.-Z. OF PLAN.



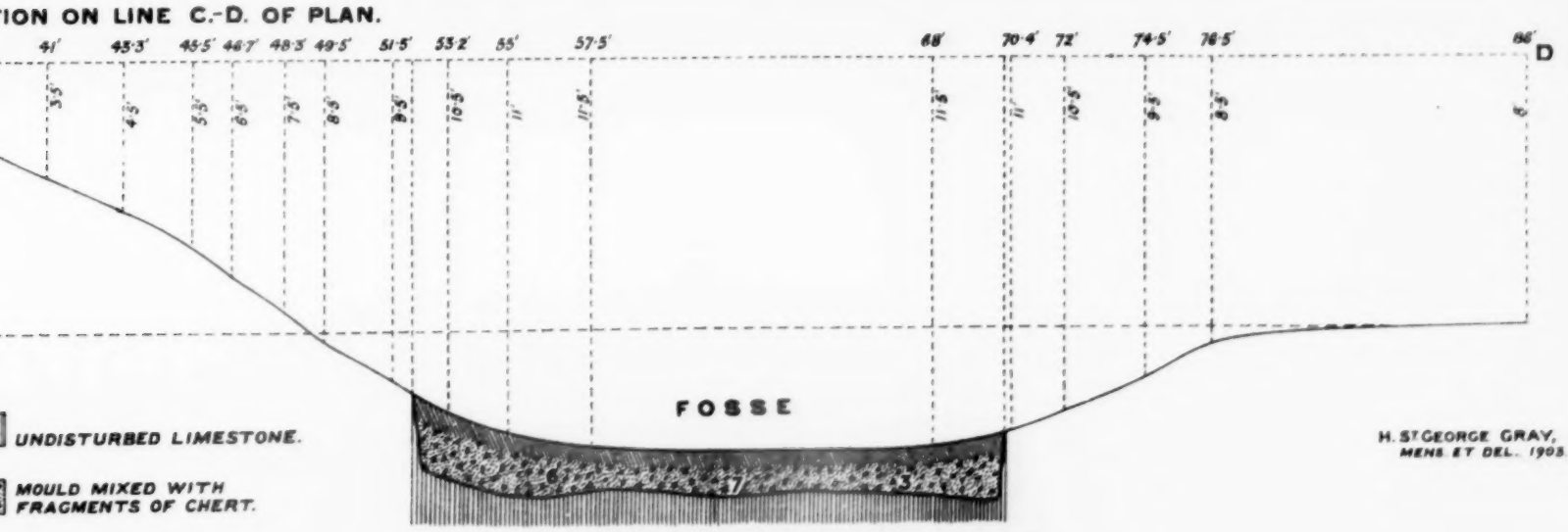
SECTION ON LINE O.-P. OF PLAN.



SECTION ON LINE E.-F. OF PLAN.



SECTION ON LINE C.-D. OF PLAN.



UNDISTURBED LIMESTONE.

MOULD MIXED WITH FRAGMENTS OF CHERT.

H. St GEORGE GRAY, MENS ET DEL. 1903.

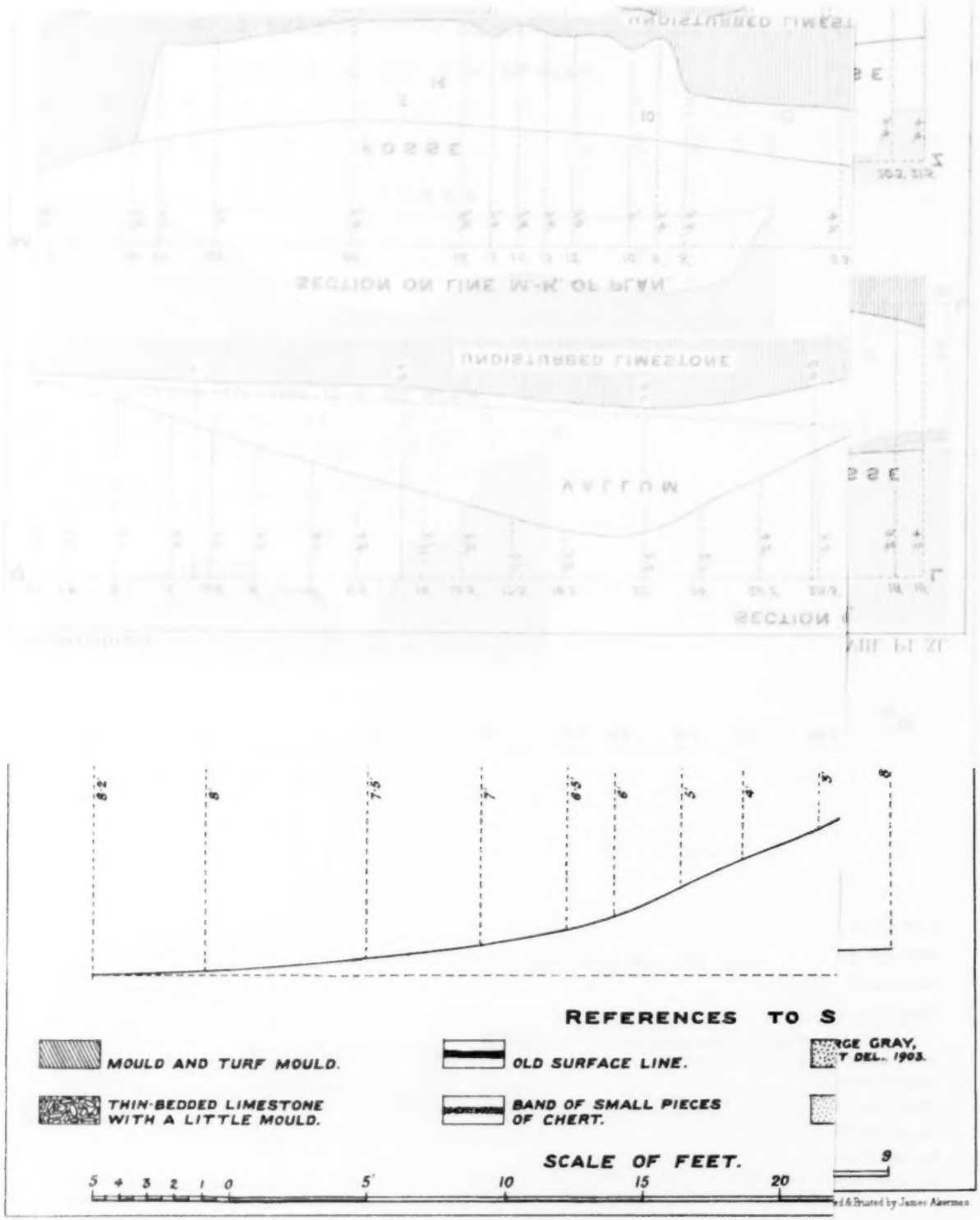
SCALE OF METRES.

3 2 1 0 3 6 9

Photo-Lithographed & Printed by Emery Walker.

— SECTIONS OF VALLUM AND FOSSE.

the Society of Antiquaries of London 1903


8·2'
8'
7·5'
7'
6·5'
6'
5'
4'
3'
8'
REFERENCES TO S
MOULD AND TURF MOULD.
OLD SURFACE LINE.
THIN-BEDDED LIMESTONE WITH A LITTLE MOULD.
BAND OF SMALL PIECES OF CHERT.
SCALE OF FEET.
5 4 3 2 1 0
5'
10
15
20
9

ARBOR

probable that these fragments may have been the remains of a kind of pick for loosening the previously fractured limestone at the time the ditch was first excavated, in the same manner as the antlers of the Stone Age in Grimes Graves described by Canon Greenwell.[a] A deer's horn pick, figured by Professor McKenny Hughes, was found at Horningsea in 1902.[b] Mr. W. Gowland, F.S.A., has recently figured a deer's horn pick found at Stonehenge, and many splinters of antlers of deer, one being embedded in a lump of chalk.[c] Such implements could not have been utilised for splitting limestone, but they would be useful in digging some of the looser material. Fifteen fragments of antlers of red-deer were found by General Pitt-Rivers at the bottom of the ditch of Wor Barrow, Handley Down, Dorset, amongst Stone Age relics.[d] Nothing else was found in Section 1. Its greatest depth was 5·4 feet (1·65 m.). The filling consisted of turf and turf-mould 6 inches (15 cm.); mould mixed with small pieces of chert, 18 inches (45·7 cm.), followed by a stiff clayey-mould to the bottom. The hard sides of the ditch and causeway were exposed.

Section 2, 10 feet (3·05 m.) wide, was next commenced on the north-western side at a distance of 16 feet (4·88 m.) to the west of the north-by-west causeway. (See section on line E-F, Plate XL.). The greatest depth of the ditch in this cutting was found to be only 2½ feet (76·2 cm.); and nothing being found here, the re-excavation of the ditch was continued[e] from this point in the direction of the causeway, the solid sides of which were found. As stone relics were fairly numerous here, and the bottom of the ditch was very irregular, surveys were made in various directions, and have been plotted to a scale of 60 to 1. The average depth of the ditch, the bottom of which was very uneven, was 3 feet (91·4 cm.) here, and the nature of the filling the same as in Section 1. This part was called "Ditch Extension, Section 2." (See sections on lines G-H, M-K, and N-K, Plate XL.)

Amongst the relics found here were six flakes[f] of black flint, of fine quality, weathered white to a considerable depth, mostly of exceptionally large size; they lay together, at a depth of 2·7 feet (82 cm.) from the surface, on a ledge on the solid side of the causeway (No. 17, Plan, Plate XXXVIII., and section on line N-K,

[a] *Journal of the Ethnological Society*, ii. 426.

[b] *Proceedings of the Cambridge Antiquarian Society*, x. plate ix. fig. 1.

[c] "Recent Excavations at Stonehenge," *Archæologia*, lviii. 49, 72, and 86.

[d] *Excavations in Cranborne Chase*, iv. 133. See also vol. iii. 135.

[e] See photograph, Plate XLIII. fig. 2.

[f] Two of these flakes have since been found to join.

Plate XL.). These flakes must have been placed by hand on the ledge and forgotten, eventually becoming buried in the silting, or perhaps purposely concealed; they could not have come by accident into the position in which they were found. The flakes are of considerable size and weight. Though of irregular form, their edges are still sharp and undamaged. Mr. Balfour has suggested that they might possibly have been intended to be used as digging tools. They are figured in Plate XLIV, $\frac{3}{8}$ scale linear.

The following were also found in the Ditch Extension of Section 2, and are marked on the plan (Plate XXXVIII.) and sections (Plate XL.):

5. Small flint flake, with fine secondary chipping; depth, 0·7 foot (21 cm.). (Plate XLII. No. 5.)
8. Stone scraper, with bevelled edge, 36 mm. in width; depth, 1·2 foot (37 cm.). (Plate XLII. No. 8.)
10. Outside flake of flint, worked in two places; depth, 0·8 foot (24 cm.). (Plate XLII. No. 10).
11. Flint, chipped along the edge; depth, 0·8 foot (24 cm.).
13. Flint flake, with serrated edge; depth, 1·5 foot (45·7 cm.). (Plate XLII. No. 13.)
14. Small, narrow flint scraper, worked all round edges; depth, 1·4 foot (43 cm.) (Plate XLII. No. 14.)
15. Large flint scraper, of pale bluish-grey colour, with chipped bevelled semicircular edge and pointed end; plano-convex cross-section; depth, 2·3 feet (70 cm.), near the bottom of the ditch. (Plate XLII. No. 15.)

In this cutting a small oval-shaped hole in the limestone floor was found, filled with a stiff clayey mould, but no relics were discovered in it. The only animal remain here was a tooth of sheep, depth 0·7 foot (21 cm.).

Section 3, also 10 feet (3·05 m.) wide, was a cutting across the ditch, midway between Sections 1 and 2, on the west side. The silting was very soon removed in this case, the uneven limestone floor being found at a maximum depth of 1·9 feet (57 cm.). Three stone implements were found here, viz. Nos. 3, 6, and 7, plan (Plate XXXVIII.), section on line C-D (Plate XL.), and Plate XLII. Nos. 3, 6, and 7.

No. 3 is perhaps the most interesting and certainly the most unusual. It is difficult to give this rudely-chipped stone implement a definite name; it would

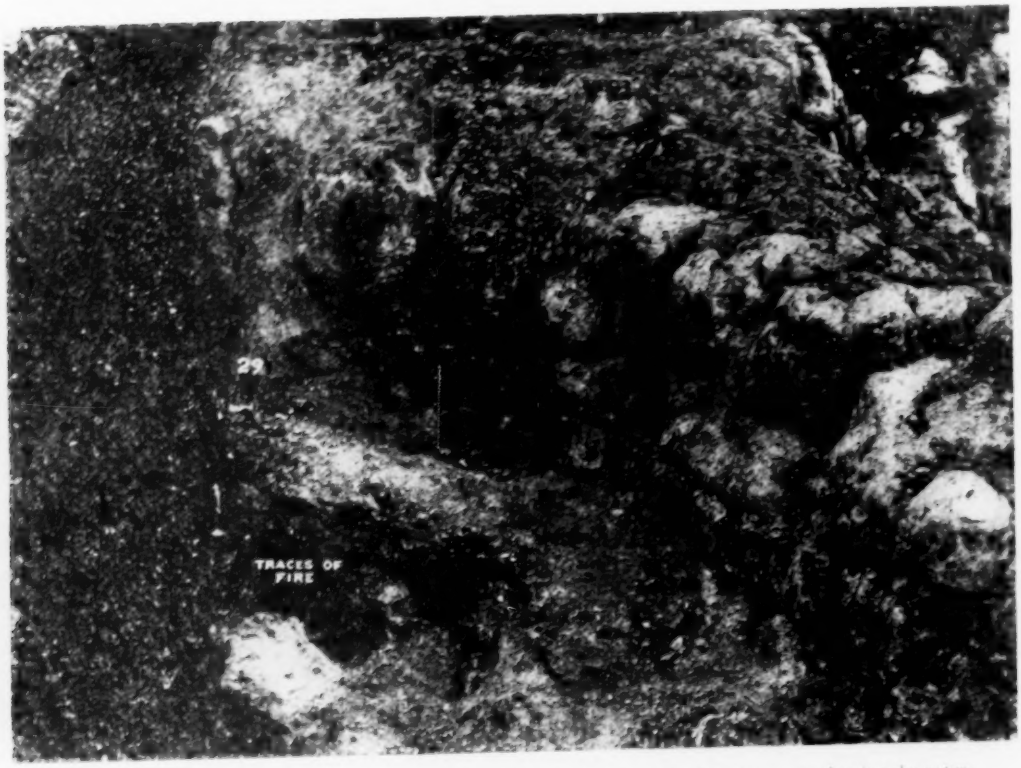


Fig. 1. View of the bottom and side of the re-excavated floor. Section 4 (south-east corner) showing the nature of the sides limestone walls.

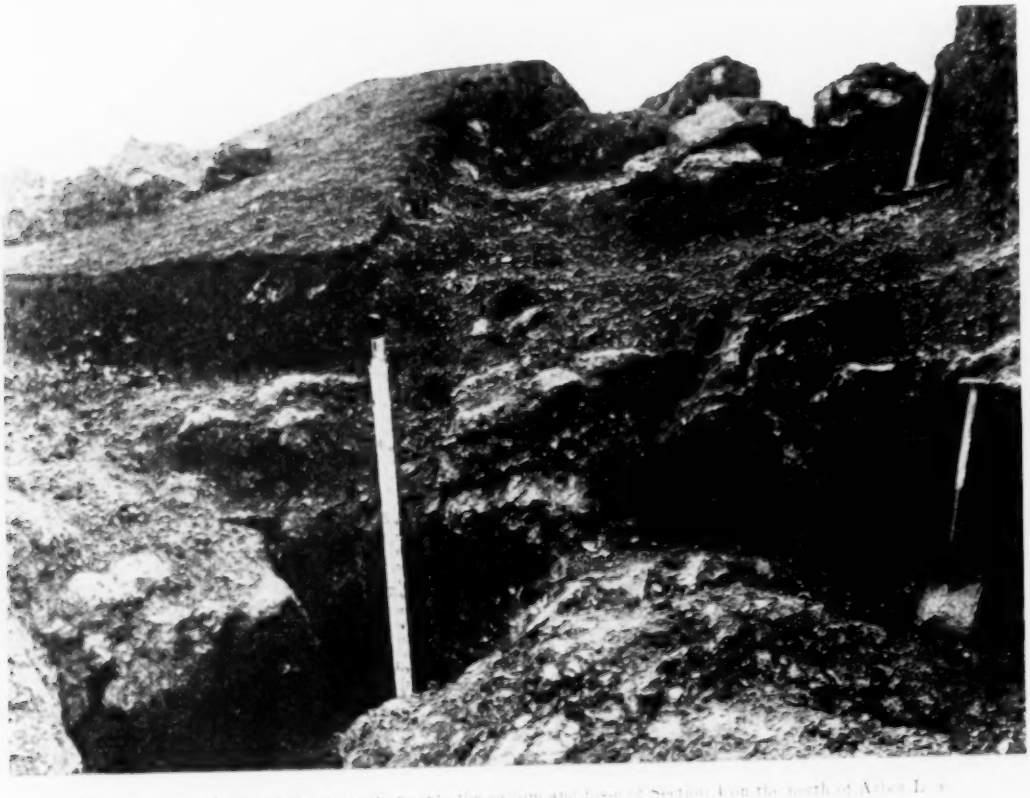


Fig. 2. General view of the excavations into the original floor of Section 1 on the north of Aisle L, and looking in a northerly direction.

serve very well as a scraping tool, and the point might have been intended for cutting grooves; or it might be a spear-head rejected in the process of manufacture. It has a plano-convex section; length 61 mm., greatest width 44 mm. No. 6 is a worked flake of black flint, with fine secondary chipping, which was found at a depth of 0·5 foot (15 cm.); No. 7, found at the same depth, is a chipped end-scraper of greyish flint, of a long narrow variety, with a notch on both sides.

Section 4 and its extension to the west to find the limestone sides and end of the ditch at the north-north-west causeway proved to be the most interesting and productive of the six ditch cuttings. (See photograph, Plate XLIII. fig. 1, and sections on lines J-L, Q-R, and Y-Z., Plate XL.) The first "find" was an almost circular greyish-white chert end-scraper, with edge of the usual semicircular form, at a depth of 1·4 foot (43 cm.) ("28" on plan and section, Plates XXXVIII. and XL., and Plate XLII. No. 28). One of the side edges exhibits some fine secondary chipping, and would serve admirably as a knife; the conchoidal fracture side is very smooth, and displays an extremely bold bulb of percussion, surrounding which some radiating "tearing" of the surface of the chert is well seen, the result of a single blow. The dorsal ridge running along this scraper is well marked, and is the result of a blow delivered above the divisional line of two adjoining and deep facets of the core from which the scraper was struck. At a depth of 3 feet (91 cm.) *close* to the lime-stone side of the ditch at the south-east of the section, about two-thirds of an extremely thin and finely chipped flint arrow-head were found; its greatest width is 21 mm., greatest thickness 2·7 mm. Its position is shown in a photograph of the cutting (Plate XLI. fig. 1). The base of this delicate implement is bounded by a semicircular arch, whilst the side-edges in the perfect arrow-head, from the points of greatest width to the tip, appear to have been quite straight, thus representing the lozenge-shaped form as regards the upper half and the leaf-shaped variety in the lower half ("29" on plan and section, Plates XXXVIII. and XL., and Plate XLII. No. 29). This type belongs to the "kite-shaped class" of Mr. W. J. Knowles.[*] On the bottom of the fosse, at a depth of 5·7 feet (1·74 m.), under stiff clayey-mould, was found the most interesting relic that Arbor Low has yielded during these excavations, viz. ("43" on plan and section,[†] Plates XXXVIII. and XL.,

[*] Although belonging to this class, Mr. Knowles does not figure an arrow-head precisely similar. *Journal of the Anthropological Institute*, xxxii. 41-56.

[†] "43" is shown at its relative depth from the surface of the stone in the section-drawing on the line J-L, Plate XL., but being found at a depth of 5·7 feet it does not come within the limit of the ditch in section.

and Plate XLII. No. 43), a barbed and tanged chipped arrow-head, of greyish-white flint or chert, of extremely symmetrical form and 1 inch (25 mm.) long, a small portion only of the tip being deficient; greatest width, 21·5 mm.; greatest thickness, 5 mm. It is finely chipped all over its surface, including tangs and stem, which latter are bevelled on both faces from median ridges to edges. The end of the tang, which is very slightly longer than the barbs, is also bevelled. The section across the arrow-head is bi-convex, but it is considerably flatter on one face than on the other. The cutting-edges are slightly convex, owing to the fact that the barbs have an inward curve.

Not far from this beautiful arrow-head, at a depth of 4·8 feet (1·46 m.), a small rough chert scraper, with semicircular edge, was found (plan and section, Plates XXXVIII and XL., and Plate XLII. No. 37); one edge is bevelled to a sharp, chipped, cutting-edge, and might have served well as a knife; the facets bear excellent examples of conchoidal fracture. In clayey-mould, close to, at a depth of 4·6 feet (1·40 m.), the greater part of a small horn of red-deer, with four tines, in an extremely friable condition, was discovered; indeed only a portion of one tine could be preserved ("39" on plan and section).

In the extension cutting to the west a greyish brown flint flake, with secondary chipping, was found at a depth of 1·2 foot (36·5 cm.), "40" on plan, section, and Plate XLII.; the bevelled edge on one side near the top is finely worked; the bulb of percussion is very prominent, and has on it a well-marked facet, known in scientific terminology as an *éraillure*.[a] At "41" (plan and section) a small chert flake was found, depth 12 cm. This completes the stone objects found in this part of the fosse. Of animal remains, a tooth of sheep was found at a depth of 3 feet (91 cm.), portion of a humerus of ox, at a depth of 5 feet (1·52 m.), and at various depths several small fragments of animal bones, too minute and friable for identification. Not to omit anything, it should be recorded that a Queen Victoria halfpenny, 1867, was found here near the causeway at a depth of 9 cm. below the surface of the turf. This is not surprising, as a coin trodden into the turf edgeways will gradually work its way downward a few inches during wet weather.

Section 5, 10 feet (3·05 m.) wide, is situated on the west between Sections 2 and 3 (plan, Plate XXXVIII.). Like Section 3, it proved to be very shallow, the limestone rock being reached in the middle of the silting at a depth of 1 foot (30 cm.) from the surface, whilst on the inner side of the ditch the depth was only

[a] "Worked Flints from the Cromer Forest Bed," by W. J. Lewis Abbott, F.G.S., *Natural Science*, x. 92-93.

1901.

7 15 14

5 20 4

10 13

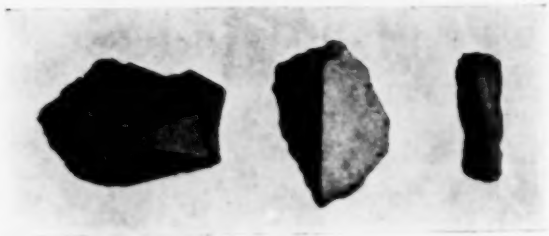
8 3 6

1902.

45 19 26

27 28

37 30 34



40 31 32

½ linear. ½ linear.

STONE IMPLEMENTS FOUND AT ARBOR LOW STONE CIRCLE IN 1901 AND 1902

0·8 foot (24 cm.). The bottom was fairly level, especially when compared with the bottom of the fosse in all other parts except in Section 3. No relics were found in Section 5. The photograph, Plate XXXIX. fig. 2, taken from the north-west vallum, shows, in the foreground in the right-hand corner, the position of this section in its re-turfed condition at the close of the excavations.

On the east by north, another cutting, 10 feet (3·05 m.) wide, Section 6, was made across the fosse. In this part, the surface of the turf of the silting at the lowest part was 7 feet (2·13 m.) lower than the general level of the ground immediately adjacent to the central stones, as shown by the contours in the plan (Plate XXXVIII.). Here again nothing was discovered, with the exception of a few very small unidentifiable fragments of animal remains too small for identification and therefore not preserved. The average depth of the cutting below the surface of the silting was 4·3 feet (1·31 m.), and the maximum depth 5·8 feet (1·79 m.) in the north-west of the section. The block of limestone rises to a height of only 7 inches (18 cm.) below the surface of the silting. (See section on line O-P, Plate XL.) On the east and north-east the median block of limestone which ran across the section was divided from the limestone side of the ditch on the east by a vein of fine clay, yellowish-brown on the top and white below, which occurred at an average depth of 4 feet (1·22 m.) from the surface of the silting; the surface mould reached a depth of 2 feet (61 cm.), below which was the usual stiff clayey-mould thickly mixed with small pieces of chert; at the bottom the proportion of clay to mould increased, and the silting became more stiff and moist; in fact at the bottom it had to be cut out in solid lumps with a small spade, the chances of finding relics consequently being very remote.

Section 4 was the deepest portion of the ditch excavated, the maximum depth from the surface being 6·7 feet (2·04 m.). The bottom presented a very uneven surface; in fact, no attempt whatever appeared to have been made to obtain even a reasonably level track along the bottom of the fosse in the parts re-excavated. The same remark applies to the bottoms of all the other sections, with the exception perhaps of the shallow cuttings, Sections 3 and 5 on the west. The committee particularly desired that I should make observations on this point. Mr. S. Jackson recently found a flooring of poles at the bottom of a Bronze Age ditch at Fairsnape Farm, Bleasdale, near Garstang.[a] The bottom of a ditch cut in the chalk of a Bronze Age tumulus dug in 1898 at Whatcombe, near Blandford,

[a] See Professor Boyd Dawkins's paper on the subject, *Transactions of the Lancashire and Cheshire Antiquarian Society*, xviii. 114-124.

by the late and venerable Mr. J. C. Mansel-Pleydell, for over twenty-seven years president of the Dorset Field Club, was observed by Professor Boyd Dawkins to be "smoothed and polished into a perfectly well-defined track by human feet circling round the burial mound." This, he adds, "may have been intended for a ceremonial procession at stated times in honour of the dead."[a] Chalk of course lends itself admirably to being smoothed by constant contact with the feet, or even by means of such primitive tools as obtained in the Stone and early Bronze Ages; whereas, in the case of the fosse of Arbor Low, the process of levelling or smoothing the mountain limestone with its veins of chert, calcite, and other hard substances would have bristled with difficulties. Although General Pitt-Rivers never actually recorded the fact, I am able to testify that the bottoms of some of the ditches surrounding Stone and Bronze Age tumuli that he re-excavated in the chalk in Cranborne Chase were perfectly smooth. Take, for instance, the case of the great Wor Barrow on Handley Down, Dorset;[b] the bottom of the ditch was quite even and polished, especially on the western side, where the fosse was 13 feet (3·96 m.) deep, and some 21 feet (6·4 m.) in width at the top.[c]

But to return to the fosse of Arbor Low. From the western edge of Section 4, the excavation called "Ditch Extension, Section 4" was extended to the westward in search of the solid limestone causeway, the rock-sides of which shelved up very gradually, as shown in the photograph (left-hand side), Plate XLI. fig. 2. From the south-east corner of Section 4, and within 1½ foot (45·7 cm.) from the surface, a "spur" of limestone extended in a north-west direction, sloping down gradually and meeting in the centre of the cutting, the limestone shelving up toward the middle of the causeway, on which long irregular ledges could be clearly traced which might well have served as steps, to facilitate the process of ingress and egress to and from the bottom of the ditch before it became filled, or partly filled, with silting. This is well shown in the section on line J-L of plan, Plate XL.

Considerable traces of fire were observed at the bottom of this cutting, especially in the south-east corner, indicated by a dark patch near the bottom of the photograph, Plate XLI. fig. 1. Dr. Garson has suggested that the traces of fire at this point may possibly indicate that this portion of the ditch, which is

[a] *Transactions of the Lancashire and Cheshire Antiquarian Society*, xviii. 122.

[b] *Excavations in Cranborne Chase*, iv. plate 253, fig. 1, and plate 249.

[c] These remarks on smooth-bottomed ditches are particularly made to remind future ditch-diggers of the desirability of making special observations on this point.

deep here, and therefore sheltered from winds, was occupied by persons employed in guarding the circle; hence the greater number of implements in this section and the corresponding section, No. 2, on the other side of the north-north-west causeway.

The completion of the excavation of the Ditch Extensions of Sections 2 and 4 enabled me to determine the minimum width of the northern causeway as 29 feet (8·84 m.). This causeway is partly shown on the left-hand side of the photograph, Plate XLIII. fig. 1. The southern causeway is well shown in Plate XXXIX. fig. 1.

On the north-west side of Section 4 through the fosse, miniature caverns occurred in the solid limestone sides of the ditch, as are well seen in the photograph, Plate XLI. fig. 2. Careful search was made here for any objects that might have been hidden at the time the ditch was open to the bottom; our efforts, however, were unrewarded.

This completed the examination of the fosse, 85 feet (26 metres) having been excavated in all, of the total length of 540 feet (165 metres). In other words, nearly one-sixth of the fosse has been re-excavated, flint implements only having been found from top to bottom of the silting. The *mean* depth of the whole fosse excavated is 3·9 feet (1·18 m.), and the average width at top 22 feet (6·7 m.).

As regards the arrow-heads, it is worthy of notice that the barbed and tanged specimen (Plate XLII. No. 43), a form generally considered to be the most highly developed, was found 2·7 feet (82 cm.) lower down in the silting than the arrow-head of leaf-shaped form, but approximating closely to the lozenge-shaped, a form which is generally regarded as an earlier form than the barbed variety (Plate XLII. No. 29). As previously stated, this type falls within the "kite-shaped class"[a] of Mr. W. J. Knowles. It has not, however, yet been clearly ascertained which form of arrow-head was first manufactured, and the matter is at present surrounded with some difficulty, inasmuch as the triangular, stemmed, and leaf-shaped varieties have been placed on record as being found together in the same locality and the same deposits. One form is easily evolved from another, and although General Pitt-Rivers' method[b] of arranging arrow-heads, showing the theoretical transition from one form to another, is excellent in museum arrange-

[a] For brevity I purpose to use this term to the end of the paper.

[b] Colonel A. Lane Fox's second lecture on "Primitive Warfare," *Journal of the Royal United Service Institution*, 1868, xii. No. li.

ment until something more definite is arrived at, yet, bearing in mind the records of the circumstances of the finding of flint arrow-heads during the last thirty-five years, it would be, as Sir John Evans has said long ago, "unwarrantable to attempt any chronological arrangement founded upon mere form, as there is little doubt of the whole of these varieties having been in use in one and the same district at the same time, the shape being to some extent adapted to the flake of flint from which the arrow-heads were made, and to some extent to the purposes which the arrows were to serve."[a]

The two Arbor Low specimens were probably not used a great many years apart, for the fosse would, throughout its lower portions, and indeed within a foot or two of the present surface of the silting, fill up somewhat rapidly, particularly at the bottom, owing to the fact of the sides of the ditch being exposed to the erosive action of the weather, and the consequent disintegration of the sides. In this way it will be readily understood that the width of the Arbor Low fosse, and indeed of all such ditches, has increased at the top during the process of silting-up and denudation of the sides, whilst the width of the ditch at the bottom would remain very much the same as at the time of original construction. Naturally the sides of some ditches would disintegrate much more quickly than others; the havoc played by frost and rain would leave its mark much more rapidly in the case of the chalk than in that of the limestone, and thus the talus formed at the bottom of the ditch would present a very pronounced concave surface, so that when the sides of the ditch become covered up nearly to the top, the thickness of the talus in the middle of the ditch would not necessarily be more than, say, a couple of feet deep in the case of a fosse of the size of that at Arbor Low. After the whole of the sides became completely sheltered in this way the filling-up to the present surface of the central parts of the ditch from natural causes would be the accumulation of centuries of finer material and stone washed in and blown in from the surrounding country. Until grass began to grow on the vallum a more or less large proportion of the silting would be derived from the slipping and washing down of material from the higher ground. Finally, when grass had begun to grow in the fosse, the silting would almost cease and the surface mould would gradually increase in thickness as vegetable matter decayed. This mould would probably form in an increasing ratio owing to the greater luxuriance of the grass caused by the greater depth of mould and the greater moisture in the centre of the ditch. It appears certain that these ancient ditches,

[a] *Ancient Stone Implements of Great Britain* (1872), 330; 2nd edit. 370.

Fig. 1. View of the re-excavated fosse, Section 4, close to the northern Causeway, and the cutting through the vallum in process of excavation on the second day.

Fig. 2. View of Section 2 through the vallum and fosse on the north-west, looking in a northerly direction.

EXCAVATIONS AT ARBOR LOW

as I have endeavoured to show, must have silted up (excepting the surface mould of course), in a constantly and greatly diminishing rate.

Now the relative depths of these two Arbor Low arrow-heads do not appear to differ very greatly when the formation of the talus is taken into consideration. The barbed arrow-head being on the bottom of the ditch and near the middle would become covered almost immediately the fosse was allowed to silt up. The other arrow-head being found within an inch or two of the side of the ditch at a depth of 3 feet, it is obvious that it would be deposited on the talus and become covered very soon after the barbed arrow-head. As before mentioned, the broken kite-shaped arrow-head was picked up out of the silting so very near the actual wall of the fosse that it is just possible it may have rested on a small ledge of the lime-stone rock, being removed therefrom by the pickaxe on the day of discovery. In any case it may, I think, be safely asserted that these arrow-heads were in use at about the same period, suggesting that these forms were probably contemporaneous in this district. Under these circumstances, this kite-shaped arrow-head might be regarded as a development of the typical leaf- and lozenge-shaped forms, made about the same time as the barbed and tanged specimen, which latter, as a type, is considered to be a late development in the art of the manufacture of the stone arrow-head; although stems are known to have been developed in the Palæolithic Age.[a]

Excavations through the Vallum.

In continuation of Section 2 across the fosse a cutting, 10 feet (3·05 m.) wide, was made through the vallum. This point was chosen as the vallum was rather low here and consequently would not entail so much labour. No relics were found in this cutting, except a doubtfully-artificial stone scraper picked up on the old surface line ("4" on plan, section, and Plate XLII.).[b] The absence of relics in this section was very disappointing.[c] The cutting, however, was of value in

[a] *Journal of the Anthropological Institute*, xxxiii. 52, 54.

[b] The surface of chert does not seem to alter as flint does from exposure and age; consequently it is often difficult, if not impossible, to decide whether certain fractures are ancient or quite recent.

[c] General Pitt-Rivers once cut four sections, 10 feet wide, through the rampart and ditch of a Bronze Age encampment without finding a relic worth mentioning; but he did not despair, and forthwith commenced to dig away the rampart and ditch all round, being rewarded by finding bronze implements and much pottery.

showing the material out of which the vallum was constructed. (See photograph of the cutting, Plate XLIII. fig. 2.) Measuring from the crest of the rampart downwards, the soils, etc. occurred as follows: (1) turf and turf-mould, 0·5 foot (15 cm.); (2) rough pieces of thin-bedded limestone mixed with a little mould, 3·3 feet (98 cm.); (3) band of small pieces of chert with a little mould, 0·3 foot (9 cm.); (4) yellowish-brown clayey mould, 0·5 foot (15 cm.); (5) "old surface line" of dark brown mould, 0·3 foot (9 cm.); (6) light yellowish-brown sand. (See section on line E-F, Plate XL.)

Like Section 2 of 1901, the section through the vallum in continuation of Section 4 yielded no relics, but proved of interest, inasmuch as it was largely composed of huge boulders of limestone, maximum length 4 feet (1·22 m.), as shown in the photographs, Plate XLI. fig. 2, and Plate XLIII. fig. 1. No doubt these boulders had been loosened in the formation of the fosse and utilised for the construction of the vallum. The crest of the rampart here is about 4·7 feet (1·43 m.) above the "old surface line" immediately below it. (See section on line Q-R, Plate XL.) Chert and calcite occurred in bands in the limestone strata in large quantities here, and fluor-spar was detected by Professor Boyd Dawkins.[a] The position of this cutting is shown in the photograph (Fig. 3).

Trenching near the Stones.

These excavations were made with a view of ascertaining whether holes existed in the limestone floor in which Stones I., II., III., and XXXVII. originally stood, but the results could hardly be considered conclusive.[b] As stated before, the various writers on Arbor Low disagree as to whether the stones originally stood in an upright position, or whether they always laid flat on the ground.

A hole, 7 by 4½ feet (2·13 m. by 1·37 m.), was made to the east of, and close

[a] Professor Boyd Dawkins visited the excavations on 2nd June, 1902; Mr. Henry Balfour, President of the Anthropological Institute, was the whole of the same day at Arbor Low, and part of the next; also on 16th August, 1901. Mr. Chas. Lynam, F.S.A., visited the excavations on two days in 1901; Dr. Garson on 22nd August, 1901, and Mr. A. L. Lewis on 9th August, 1901. On 4th June, 1902, four members of the Derbyshire Archæological Society visited the diggings, including Mr. H. A. Hubbersty, Mr. W. R. Bryden, and Mr. W. J. Andrew, F.S.A.

[b] More time could not be bestowed on this particular investigation.

to, Stone XXXVII.[a] There was a well-marked depression in the turf here, and the stone has a flat squared surface at this end. Just below the turf, depth 0·3 foot (9cm.), a small fragment of Romano-British pottery was found (Plan "35"), and a small discoidal flint scraper, 31 by 26·5 mm. and 7·7 mm. at its thickest part, yellowish-brown and translucent, was found in mould at a depth of 0·6 foot (18 cm.) ("34" on plan, Plate XXXVIII., and Plate XLII., No. 34.) It is worked all round the edges and on both faces, and in addition all over the bulb of percussion. A hole in the limestone floor certainly existed close to the north-east of the stone, of more or less oblong form, length 5·8 feet (1·79 m.), maximum depth below surface 2·1 feet (64 cm.); it, however, appeared to me to be merely one of the usual natural shallow depressions in the limestone, and the

Fig. 3. View of Arbor Low taken from the summit of the tumulus on the south-east vallum, looking in a north-westerly direction.

excavation afforded no evidence of a hole having been cut for the reception of the base of a standing stone. Another hole 8 by 4½ feet (2·44 m. by 1·37 m.) was made at the north-west end of Stone II. No evidence as regards the original position of this stone, if it ever stood upright, was adduced from this digging, and nothing was discovered but a flint flake (Plan "38"), depth 0·5 foot (15 cm.).[b]

[a] This is the stone on which a drawing-board rests on the right of the photograph, Fig. 3. The depression is seen on the shadow side of the stone.

[b] The man stooping down in a hole in the photograph, Fig. 3, indicates the position of this excavation.

The south-west edge of Stone I. in the centre being bordered by a marked trench, an excavation 13 by 5 feet (4 m. by 1·52 m.) was made.[a] Digging had evidently taken place here in recent times, probably by Messrs. Bateman and Isaacson in 1845, when they explored the tumulus on the south-east vallum. The rock was reached at a maximum depth of 61 cm. below the highest part of the turf, and a minimum depth of 30 cm. Early Victorian shards were found, and a clay tobacco pipe bowl, nineteenth century; also a flint flake, depth 9 cm. (Plan "36"), and a fragment of pottery, apparently of Romano-British quality ("42" on plan), depth 40 cm.

A larger piece of trenching, 35 by 7 feet (10·67 m. by 2·13 m.), was dug in 1901, between Stones I. and II., and to the east of them in the direction of Stone XXXVII. To the west a stump (No. 13) was found just under the turf standing in a leaning position towards the north-east.[b] Between these stones, at a depth of 0·5 foot (15 cm.), another fragment of Romano-British pottery[c] was found ("19" on plan), and at a depth of 0·9 foot (27 cm.) a small chipped flint implement ("20" on plan), length 33 mm., width 28 mm., resembling a broad leaf-shaped arrow-head in form, flaked on both sides; but it may have been hafted and used perhaps as a knife, as the point is extremely obtuse, and therefore not well adapted for penetration. It is figured in Plate XLII. No. 20.

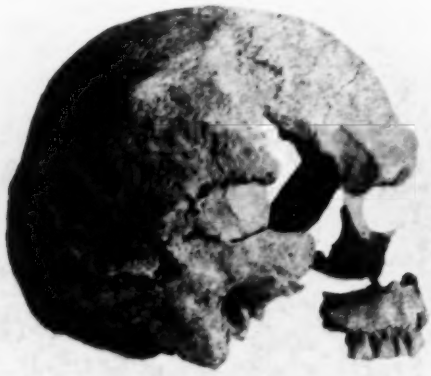
No holes for the reception of the bases of the monoliths were found between these stones; in fact, the undisturbed ground in this part was struck at about 1·7 foot (52 cm.) from the surface. The present evidence afforded by the digging of these holes seems hardly sufficient to warrant the assertion that the builders of the stone circle did not cut holes in the limestone for the reception of the stones, that is, supposing they originally stood upright.

To the east of Stones III. and IV. there were signs on the surface of this part having been excavated before. The rock was reached here at very variable depths, and at the extreme east of this trenching an excavation, 7·9 feet (2·43 m.) deep, was made before the undisturbed ground was reached. The hole was filled with rich mould mixed with a little chert. No relics were found except a fragment of human ulna ("9" on plan), depth 0·5 foot (15 cm.). It is possible that a skeleton or skeletons may have been removed from here, and that this ulna was lost in the filling-in. If this part had been excavated before, there were no signs

[a] The man standing up filling in this excavation on the left side of the photograph, Fig. 3, indicates the position of this hole.

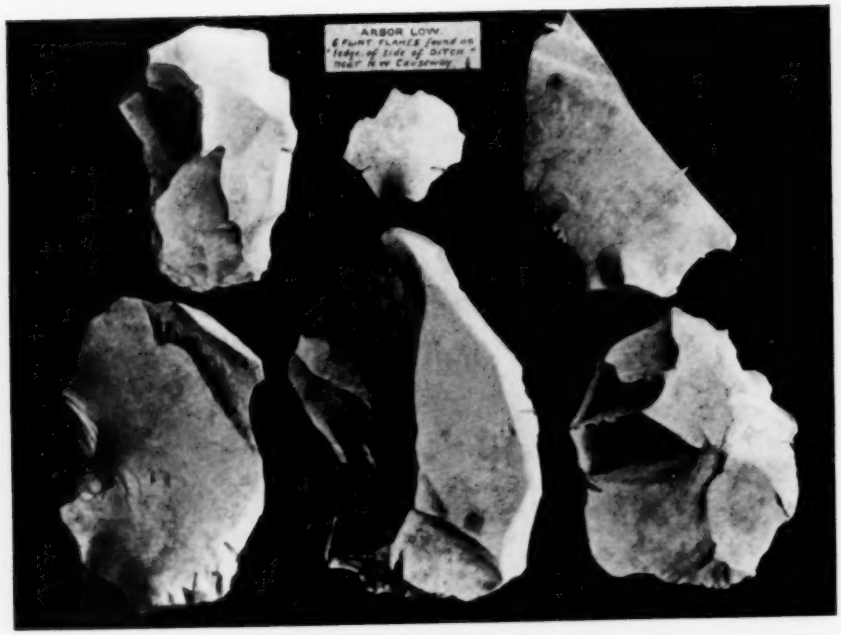
[b] This was left *in situ* at the completion of the excavations.

[c] It consisted of a fragment of rim, grey on the outside and brick-red on the inside.



½ linear.

No. 17



SKULL AND FLINT FLAKES FOUND AT ARBOR LOW

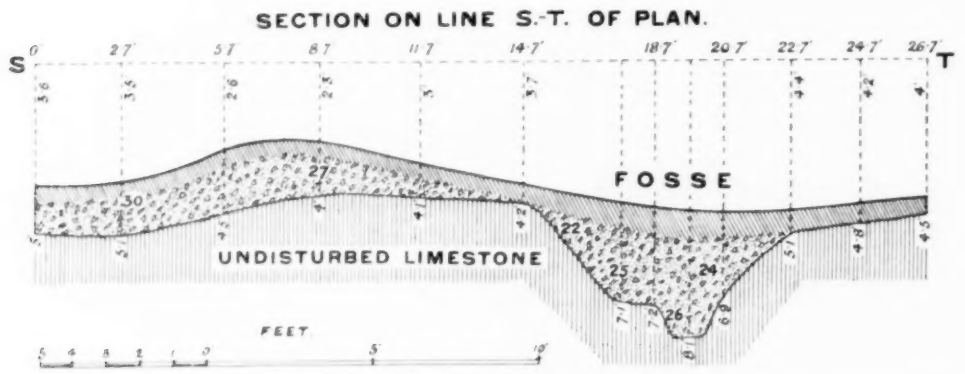
of the ground having been disturbed to the west of the small Stone No. IV. Here, close to Stone III., a human skeleton was discovered (see plan); the middle of the body (a fully adult male) was situated 6·5 feet (1·98 m.) to the south-east of the centre of the circle.[a] It was discovered on 16th August, 1901, but as Mr. Balfour was expected to be present on the following day, the men were directed to cover it up for the night. Next morning the skeleton was uncovered and cleared in order that it might be photographed *in situ*. It proved to be an extended interment, the skull being only 1·2 foot (37 cm.) from the surface. The skull, which was much crushed and weathered, was found on removal to be in forty or fifty pieces; some of the facial portions and sides had unfortunately decayed, and the lower jaw was not present. The skull is represented in its restored condition, $\frac{1}{3}$ linear in Plate XLIV.; three views, viz. *norma lateralis*, *norma facialis*, and *norma verticalis*. Parts of the skeleton were missing altogether, including the tibiæ, the fibulæ, the condyles of the femora, one patella, the feet and hands. The end of the left femur came close to the south-east corner of Stone III. The skeleton, which was buried in pure mould, lay on his back, with the face turned slightly to north-east, and was surrounded by large blocks of stone built up on the south, west, and north sides to within a few inches of the surface; the ends of all the bones were much decayed; the head was to the south-south-east; the bearing along vertebral column 164½ degrees south; the length from the top of skull to the lower end of the femora was 3·9 feet (1·19 m.). No relics were found with the skeleton.

The approximate length of the left femur is about 453 mm., which gives a stature (by Rollet's method) of 5 feet 5 inches (1·65 m.). The skull has been restored as far as possible (Plate XLIV.), and turns out to be mesaticephalic, or medium-headed, with a cephalic index of about 78·0. At the Glasgow meeting of the British Association, Dr. Garson read a detailed report on this skull, concluding by saying that "the osteological characters show that the individual was not of the type found in interments of the Neolithic period, neither do they point to his being of the Bronze Age type, though he was more nearly allied to it than to the former. On the other hand, there are no characters about the specimen which would preclude its being much more recent. The extended position in which the body had been laid decidedly supports the view of the interment being of more recent date than the Bronze period, to which I consider the weight of the evidence afforded by the osteological characters also points."

[a] The centre of the circle is marked on the plan by a large spot on Stone III.

Excavations in the Small Dyke connected with the Vallum of Arbor Low on the South-west. (See Plan, Plate XXXVIII. and Sections.)

The primary idea of excavating here was to ascertain whether the ditch of this small dyke continued under the rampart of Arbor Low itself, and if possible to prove its age by means of any relics that might be found. The ditch on the surface is marked only by a very slight depression, and the bank at the present day averages only 1·5 foot (45·7 cm.) above the level of the surrounding field. Doubtless the bank was higher at the time of construction, but denudation has



For "References to Soils," see Sections, Plate XL. The larger figures represent the numbered "finds."

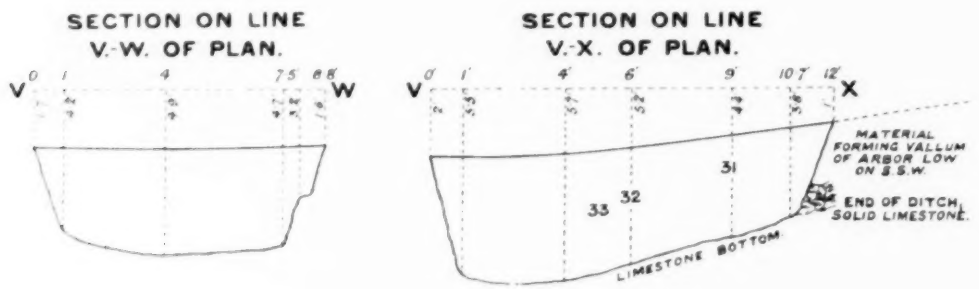
intervened, and loss by material gradually sliding down, thus assisting in the formation of the silting of the ditch. A section, 7 feet (2·13m.) wide, was first made through the bank and ditch at a point 170 feet (51·82 m.) from the centre of Arbor Low, and within the area of the plan. The finds in the ditch here were: a small worked flake of yellowish-brown colour and translucent, depth 1·2 foot (37 cm.), "22" on plan, Plate XXXVIII., and the accompanying section; and a flint flake, depth 1·8 foot (55 cm.), "24" on plan and section. The bank yielded: At "27" on plan and section, depth 0·9 foot (27 cm.), on the level of the "old surface line," a well-formed greyish-white chert (or flint) end-scraper, maximum length 42 mm., width 36 mm., thickness 8 mm.; both faces are almost flat, and the bevelled edge of horse-shoe form is finely chipped, exhibiting signs of considerable use. It is figured in Plate XLII. No. 27. At "30" on plan (Plate

XXXVIII.), and section, depth 0·7 foot (21 cm.), a greyish flint scraper, an end- and side-scraper combined; length 53 mm., width 30 mm., thickness at chipped and bevelled edge, 8 mm.; at the "bulb" end the implement has been finely worked to a point. This end and side were probably used for cutting purposes; the whole implement, and especially the finely-chipped semicircular scraping-end, is very smooth and worn, indicating prolonged use. It is figured in Plate XLII. No. 30. These implements (Nos. 27 and 30) are undoubtedly of the date of the construction of the dyke.

No further excavation of the bank was made, but the exploration of the ditch was extended for 4·5 feet (1·37 m.) to the north, and produced the following stone objects: At "25" on plan and section, a long greyish-white chert flake, with rough and irregular serrations along both edges, depth 2 feet (61 cm.); the oblique top does not appear to have been worked; the bulb of percussion displays a large and well-marked *éraillure*. At "26" on plan and section, at a depth of 3·2 feet (98 cm.) close to the bottom of the ditch, a small white flint knife, finely-chipped and of somewhat triangular form, length 30 mm., width 20·5 mm., greatest thickness 7 mm., was discovered. It is of an uncommon form, and at first sight would probably be included in the category of arrow-heads; it is, however, apparently a finished implement, being chipped all round the edges; the edge at the base shows signs of crushing or bruising; one of the side-edges is straight and neatly chipped, whereas the other is convex with a finely-worked bevelled cutting-edge with signs of crushing near the base. On the other face the concave edge has been considerably worked; the bulb of percussion has also been chipped, leaving part of the *éraillure* facet visible. This is the most important relic found outside the vallum of Arbor Low during these explorations; it is figured in Plate XLII. No. 26. Two flakes were also found here both at a depth of 2 feet (61 cm.): one is merely a long, narrow, outside flake; the other a flint flake with edges slightly serrated.

At this point the little bank had been levelled down, probably for a modern track, recommencing and almost immediately terminating in the vallum of Arbor Low. Here another small excavation, 8 feet (2·44 m.) wide, was made into the ditch to determine whether it ended here or continued in a northerly direction under the vallum of Arbor Low. The ditch, however, shelved up gradually, and the rock-end was found (as shown in the annexed section on line V-X of plan), thus proving that this little earthwork is of the same period of construction as Arbor Low or later; but judging from the relics discovered, it would appear to be of about the same date as the larger monument. In this latter excavation a

calcined chert scraper was found, 0·9 foot (27 cm.) deep ("31" on plan, section, and Plate XLII.). This implement, which was formed from an outside flake, has a pronounced and straight dorsal ridge, the section across the scraper being



triangular. At "32" on plan and section (No. 32, Plate XLII.), a small, elongated, narrow black chert end-scraper, worked on both sides, was found, depth 1·6 foot (49 cm.); and at "33" a black chert flake, depth 1·8 foot (55 cm.).

The average depth of this little ditch beneath the surface was 3 feet (91 cm.); the width at top, 8 feet (2·44 m.).

Summary.

During the four weeks that the excavations were in progress, no metals were discovered, nor any traces of fictile ware that could be assigned to the date of the construction of Arbor Low. Six sections were cut through the fosse, 85 feet (26 metres) of fosse in all; two cuttings were made through the vallum; four patches of trenching of varying dimensions were dug in the interior; and of the small dyke to the south-south-west, 7 feet (2·13 m.) of rampart and 19½ feet (5·94 m.) of ditch were examined. The number of relics found has certainly been disappointing, and yet, on the other hand, Arbor Low, not having been a habitation, and from negative evidence appearing not to have been a place of sepulture at a period closely following its construction, I do not know that more relics could be expected under the circumstances. Nothing Roman has been found, except three small fragments of what appears to be Romano-British pottery just below the turf in the interior. Whilst speaking of this period, the following extract might be introduced: Dr. Cox wrote in 1884, "I have been myself convinced, after the closest and most unprejudiced study, that the date of Arbor Low is subsequent to

the Roman occupation of Britain, and that it was erected as a trophy of victory on a spot where a commander fell, or where the crisis of a battle was decided."

As is well known, flint scrapers are frequently found during successive ages down to and including Roman times, but here they are found deep in the silting of the fosse, only in association with other rude stone implements and chipped flint arrow-heads of Neolithic form, but of a variety found also in later periods. By the way, a flint arrow-head was found with Late-Celtic remains in the Glastonbury Lake village, but of course there is no proof that it was made during that period. The majority of the implements found at Arbor Low appear to be of chert, which is only what would be expected, seeing that it is indigenous and an excellent substitute for flint, whereas flint was brought probably from some considerable distance.

Sir John Evans, in *Ancient Stone Implements*, states that Mr. J. F. Lucas had a roughly-chipped celt, 4 inches (10 cm.) long, from Arbor Low, but no record of

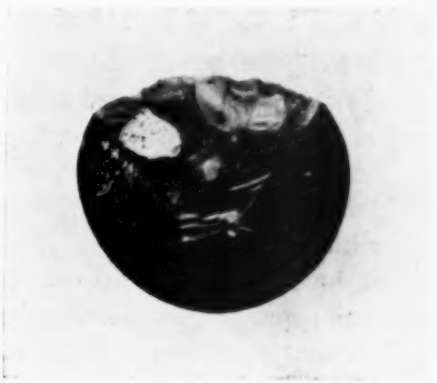


Fig. 4. Circular flint knife found at Arbor Low (Lucas Collection, British Museum). ½ linear.

Fig. 5. Circular flint knife found at Arbor Low (Lucas Collection, British Museum). ½ linear.

its actual finding appears to have been preserved.[a] Sir John also mentions the finding of a rare form of circular knife[b] at Arbor Low in 1867, Fig. 4, formerly in Mr. Lucas' collection; and in addition he figures a finely-chipped flint knife, or knife-dagger,[c] Fig. 6, nearly 6 inches (15 cm.) long, found at Arbor Low in June, 1865 (Lucas Collection). Jewitt has engraved the same implement full size,[d] and this

[a] *Ancient Stone Implements*, 2nd edit. 72.

[b] *Op. cit.* 343.

[c] *Op. cit.* 352, fig. 267.

[d] *Grave Mounds*, fig. 155.

and the circular knife, Fig. 4, as well as the smaller knife of the same kind, Fig. 5, 4·7 cm. in diameter, are now[a] in the British Museum.[b] Unfortunately, there appear to be no records of the discovery of these implements, and as their *gisement* is unknown, they assist very slightly in the determination of the actual period of the erection of Arbor Low.[c]

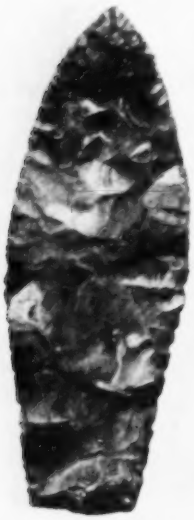


Fig. 6. Flint knife-dagger found at Arbor Low (Lucas Collection, British Museum). $\frac{1}{2}$ linear.

Arbor Low is of such precise age as the barbed arrow-head may be assigned to, it having been found on the bottom of the deepest portion of the fosse. This form, being usually recognised as a late development in Neolithic flint working, points to the probability of the construction of the fosse and vallum not being assigned to a date earlier than the Late Neolithic period, although, judging from various "finds" of Neolithic arrow-heads of barbed form, they may perhaps have been in use, in some districts, about the middle of the Neolithic period. However, there were no indications that this arrow-head might have reached its position at a date long subsequent to the formation of the fosse. On the other hand, it is well known that the "tanged and barbed" type of arrow-head is very frequently found associated with Bronze Age finds. The existence of stone implements to the exclusion of bronze does not necessarily establish a Neolithic age for a monument such as this; and yet, considering the amount of excavation done, the absence of bronze has some significance. If Arbor Low was actually constructed in the Early Bronze Age, we should not expect to find any abundance of the then precious metal. Even small fragments of broken bronze would not be thrown away at this period; indeed, every care would be exercised to preserve fragments for the melting-pot, much as we preserve all broken and disused gold objects, merely on account of their value as gold.

On the south-east vallum a Bronze Age tumulus was constructed undoubtedly from material derived from the original monument of Arbor Low. As previously

[a] Since 1873.

[b] Reproduced here through the kindness of Mr. C. H. Read, F.S.A., Keeper of the British and Mediæval Antiquities in the British Museum.

[c] It is just possible that these implements may have been procured from tumuli near Arbor Low.

stated, no bronze was found here or in Gib Hill, just over 1,000 feet distant; but their other contents point to a Bronze Age culture, probably not particularly late. If the "finds" from this tumulus[a] on the vallum of Arbor Low are to be regarded as belonging to the Early Bronze period, "then," as Mr. Balfour said at Belfast, "the probability of the circle being of Neolithic date is much increased."

The absence of finds on the old surface line under the vallum in the parts examined unfortunately does not help towards the solution of the problem of date. Our conclusions, in the present state of our knowledge, have to be deduced on somewhat meagre evidence as regards the quantity and nature of the relics found. The discoveries made in 1902 correspond in the main with those made in 1901.

In conclusion, it remains to be said that the date of the construction of the Arbor Low Stone Circle should be located, in accordance with the evidence derived from these explorations, within the period covered by the Late Neolithic and Early Bronze periods; in other words the period of transition from stone to bronze.[b]

[a] The absence of bronze in this interment does not necessarily give an Early Bronze Age date for the burial, for bronze was rarely found with interments even in the fully-developed Bronze Age. The two pots found in the tumulus (Figs. 1 and 2) are not "beakers," or drinking vessels, which the Hon. John Abercromby has recently classified as being the oldest Bronze Age ceramic type in Britain. (*Journal of the Anthropological Institute*, xxxii. 373.)

[b] The date of construction of Arbor Low appears to tally precisely with Mr. Gowland's deductions as to the date of the erection of Stonehenge, from evidence derived from his excavations there in 1901. (*Archæologia*, lviii. 85, 86.)

APPENDIX I.

Short Descriptions of the Photographic Views.

Plate XXXIX. fig. 1.—General view of the southern and western part of Arbor Low, from the tumulus on the south-east vallum, looking westward, showing the fosse in the foreground and the "spur" of *débris* thrown out from the tumulus by W. Bateman in 1845. The southern causeway is well defined. The large stone on the right, the one furthest away, is No. X., and the numbers of the others can be determined from the plan, Plate XXXVIII. The small dyke running in a south-south-west direction from the vallum of Arbor Low can be traced, especially where the stone wall on the left affords a background for it. In the distance, Gib Hill (or Bunker's Hill) is seen, surmounted by the Government Notice Board. It is here that Bateman discovered a Bronze Age interment in 1848. The mound is 1,043 feet from the centre of Arbor Low.

Plate XXXIX. fig. 2.—General view of the eastern and southern part of Arbor Low, taken from the crest of the vallum on the west. The photograph was taken particularly to show the present form of the tumulus on the south-east vallum, which Wm. Bateman, after his excavations in 1845, does not appear to have restored to its original form. In the foreground the leaning stone No. XVI. is seen; the central stone is No. I., and the largest on the right is No. X. The numbers of the others can be obtained from the plan. In the right-hand corner of the photograph the fosse is shown, and a portion of Section 5 in its returfed condition.

Plate XLI. fig. 1.—View of the bottom and side of the re-excavated fosse, Section 4, south-east corner of the cutting, showing the nature of the solid limestone *in situ*. The surface of the turf may be seen in the upper left-hand corner. The figure "29" indicates the spot where the greater portion of a flint kite-shaped arrow-head was found. Traces of fire were observed at the bottom in the dark corner on the left side.

Plate XLI. fig. 2.—View of the excavations into the ditch and rampart of Section 4 on the north of Arbor Low, and looking in a northerly direction. The nature and roughness of the limestone bottom and sides of the ditch, the boulders in the rampart and the little caverns, mentioned above, are well seen. The barbed and tanged arrow-head (No. 43, plan, section, and Plate XLII.) was found at the bottom of this ditch, on the left-hand side, but the actual spot does not come within the area of the photograph.

Plate XLIII. fig. 1.—View of the re-excavated fosse, Section 4, close to the northern causeway, and the cutting through the vallum in process of excavation on the second day, when the large limestones boulders, originally obtained during the construction of the ditch, were discovered. The unturfed part on the right of the cutting indicates the position of the Ditch Extension of Section 4, afterwards excavated in search of the hard wall of the causeway.

Plate XLIII. fig. 2.—View of Section 2 through the vallum and fosse on the north-west, looking in a northerly direction. The nature of the material forming the vallum is fully described in the paper. The men are working in the Ditch Extension of Section 2 (towards the northern causeway), in which the "finds" Nos. 5, 8, 10, 11, 13, 14, 15, and 17 figured in Plate XLII. were discovered.

Fig. 3.—General view of the Arbor Low Stone Circle, taken from the summit of the tumulus on the south-east vallum, excavated by William Bateman in 1845, looking in a north-west direction, with Upper Oldham's Farm in the middle distance. The group of three stones in the immediate foreground are Nos. XL., XLI., and XLII.; the numbers of the others can be obtained from the plan. The central excavations were in progress when this photograph was taken in 1902. (The human skeleton had been found in the "centre" in 1901.) The northern entrance causeway is shown, on the right of which is Section 4, through the vallum; and on the left Section 2 across the vallum, seen in its restored condition, but without turf.

APPENDIX II.

Short Report on the Human Skeleton found in the Stone Circle of Arbor Low in 1901. *By* J. G. Garson, *Esq.*, *M.D.*

The skeleton found by Mr. Gray near the centre of Arbor Low in August, 1901, is that of an adult male. (Plan, Plate XXXVIII.) The bones are not in a good condition as regards preservation; hence it has not been possible to ascertain from them the probable stature of the individual more nearly than has already been done by Mr. Gray in his paper. The upper part of the brain-case, or calvaria, and part of the face, though much broken and very imperfect, have been pieced together by Mr. Gray in a most creditable manner, so that it is possible to ascertain and determine the most important points in the morphology of the former fairly well. (See three photographic views of the skull, Plate XLIV.) The muscular ridges are well developed, the glabella and brow ridges are well marked and continuous with each other, the most prominent part of the latter being over the inner third of each orbit. The tubera of the parietal bones are prominent, the curved lines on the occipital bone and the surface between them for the insertion of the muscles of the head and neck are well marked; but the mastoid processes of the temporal bones are of very moderate size. As viewed from the front, the malar bone, which is retained on the left side, shows that the axis of the orbit slants markedly downwards as well as outwards; the orbital processes are of moderate size, and the interorbital width appears to have been of medium size. As viewed from behind, the lateral walls are seen to be nearly vertical but slightly converging, as they rise upwards, and finally curve over to form the vault with a flat or low arch. When viewed from above the outline of the calvaria is unsymmetrical in the occipital and posterior parietal regions, and converges slightly from the tubera of the parietals towards the orbital processes of the frontal with straight sides. On viewing the cranium laterally the profile outline of the mid-parietal region is elevated and bulged upwards: this fulness extends from one tuber to the other, while the frontal region above the glabella follows a graceful curve backwards and upwards to the bregma.

The following are the chief dimensions which the state of the cranium permitted me to determine: maximum length, 189 mm.; maximum breadth, 148 mm. These figures give a cephalic index of 78·2, which places it, as regards general form, above the middle of the mesaticephalic group (75-79·9) and shows that the individual when alive had a head slightly rounder than that of the average male of the present population of Great Britain, more

brachycephalic than in some parts of the country, but more dolichocephalic than in others. The ophryo-occipital length is 185 mm.; the projection of the glabella is, therefore, 4 mm. The minimum frontal breadth is 106 mm., and the maximum frontal breadth is 125 mm.; the relative properties of these two measurements to the maximum breadth (the latter being taken as 100) is 71·6 and 84·5 respectively. The horizontal circumference is 530 mm. Several other measurements are given in the *Report of the British Association*, 1901, pp. 438-40.

Little can be said about the characters of the facial portion of the cranium, as it is so imperfect. The palate is parabolic in form. The teeth are moderately worn down, especially the molars.

The osteological characters show that the individual was not of the type found in interments of the Neolithic period, neither do they point to his being of the Bronze Age type, though he was more nearly allied to it than to the former. On the other hand, there are no characters about the specimen which would preclude its being much more recent, even that of a person interred only about a hundred years ago. The extended position in which the body had been laid decidedly supports the view of the interment being of more recent date than the Bronze period, to which I consider the weight of the evidence afforded by the osteological characters also points.

APPENDIX III.

Short Descriptions of the Stones at Arbor Low as numbered on the Plan, Plate XXXVIII., August, 1901.

Note.—The length and breadth of the Stones can be ascertained from the Plan.

Stone I.—In centre, nearly flat, broken in two at N.W. end. Slopes a little to W. At E. point and on W. side it stands 1½ foot from turf. There is a trench along the W. side. Surface fairly smooth. There is a small flat stone to E. (not numbered).

Stone II.—Near No. I., nearly flat, but sloping a little towards W. to turf line. It is about 10 inches above turf on E. side. The slab is rather thicker at the N. end than at the S. end.

Stone III.—To the S.E. of No. II., flat, sloping very slightly to E. Pitted surface. The human skeleton was found close to S.E. of this stone; in fact the left femur almost touched it.

Stone IV.—A small stone to N.E. of No. III. Slopes rather considerably towards S.; only 2 inches above turf.

Stones V., VI., and VII.—In a group; the nearest stones of the circle to the S. causeway. A considerable depression in turf to S. of No. V. At S. end this stone stands about 2 feet above average turf level, and it slopes gradually to turf on N. The under-surface of stone at S. has been much polished by the rubbing of sheep. No. VII. slopes towards N., and is fractured in two places. At S. end it is about 1 foot from turf. No. VI. is a fractured stone about 9 inches thick, which stands on end between Nos. V. and VII., leaning slightly to W. Mr. A. L. Lewis, who measured the circle in May, 1871 (see his plan, etc. in *Anthropologia*), says that Stone VI. was not then in its present position, but has been placed there since. On going over the ground in 1901 to revise his plan, he thought he saw signs of a certain amount of surface digging during the previous thirty years, but no material alteration in the circle generally.

Stone VIII.—About 9 inches above turf, in a slight depression; slightly higher in the middle. Pitted and rough, but "pits" are not very frequent, large but not deep.

Stump 1.—Between Stones IX. and X. Stands about 1 foot from turf level, and leans a little towards centre.

Stone IX.—Flat, sloping slightly towards ditch on S.W. Stands 1½ foot from turf on S.W., and 1 foot on N.E. Much pitted surface, small, frequent, and deep.

Stone X.—Marked depression in turf at W. end of stone, which end is of oblong form, 2 feet in thickness. This depression sinks to about 6 inches below the surrounding turf level. The stone, which slopes towards the N.E., is only 10 inches above turf on E. side. Upper surface, fairly flat; characterised by a broad crack along middle, and what may be called a "pot-hole" near N. corner. Turf grows between stone on N.W. Much sheep-rubbed underneath at S.W.

Stones XI., XII., and XIII.—Small stones in a little group between Nos. X. and XIV. In a slight depression, partly in continuation of depression at the W. of Stone X. No. XI. slopes towards centre, and has a smooth flat surface. Height 1 foot from turf at S.W., 4 inches at other end. No. XII. has turf growing up the sides; greatest height at N.W., 4 inches. No. XIII. slopes towards S.W. and S.E. to turf; on other sides, 4 inches high.

Stone XIV.—Lies in slight depression at ditch end; flat; pitted in places by weathering, with cracks in which turf has grown. Height about 10 inches from turf.

Stone XV.—Very smooth surface, sloping to turf on E.; at its squared W. end, its height is 1·3 foot.

Stone XVI.—Upper side fairly flat; leans at about 35 or 40 degrees with general turf level towards the N.E. In a well-marked depression, above which it stands, at highest part, 3½ feet. About 1¼ foot thick at S. and 1½ foot at N. The only stone in the circle that can be said to be standing (1901).

Stone XVII.—Lies in slight depression; nearly flat, but sloping slightly towards the W. ditch, where its height is only 6 inches, rising at N. to 1 foot; very rough surface, sides a little overgrown with turf.

Stump 2.—Cleaved in two and partly overgrown with turf; height 10 inches.

Stone XVIII.—Slopes off towards the W. ditch; at E. its height is about 9 inches; at W. about 1½ foot. Flat surface, but much pitted, and turf-covered in places.

Stump 3.—Stands at two highest points 1 foot from turf, with a dip of 4 inches between.

Stone XIX.—On a slight mound. Height at S. 0·7 foot from average turf, rising slightly higher (ridge N.E. and S.W. line), and then gradually sloping off to turf at N. and N.W.

Stone XX.—Slopes all round to turf from a central point, height 1 foot. It does *not*, however, slope off at W. point.

Stone XXI.—Lies in slight depression, sloping slightly towards ditch. Flat surface and pitted in places. Height, 1·2 foot. Ragged along N.E. edge.

Stone XXII.—Flat; slopes towards the ditch; height, 1·3 foot. Half-oval weathered hole through side of stone on S.W.

Stone XXIII.—Lies in very slight depression; very uneven side towards W. Rough surface, pitted somewhat to S.E., S., and S.W., and highest at these points. Flat surface to N. and N.W., height 1 foot. At other points it is 1·2 foot high.

Stone XXIV.—Slopes towards N.; slopes-off to turf at N.W. and N., but not at N.E. Depression in turf at S. end, extending half-way across stone to N. At S.E. corner its

height is 1·3 foot; at S.W. 2 feet, gradually sloping along W. face to turf on N.W. Flat surface with small but numerous "pittings."

Stone XXV.—Marked depression in turf at S., but not at N. Height at S. 2¾ feet. The stone slopes towards the N. where it reaches the turf level. Rough surface, with fracture at N., running N.W. to S.E. Turf rises in depression under the stone at S., to support it. The stone is tilted up at S., at an angle of about 20 degrees with turf. Much rubbed underneath, by sheep.

Stone XXVI.—In slight depression to N., more marked to S. Slopes towards N., almost to turf level. At S. its height is 2 feet. It is about 1½ foot thick at S. Large "pittings," but not numerous. Two oval holes, through stone to turf. The larger hole measures 18 inches by 10 inches.

Stump 4.—Very narrow and sharp, about 18 inches high.

Stone XXVII.—Very rough, about 1·5 foot high in middle. At N., an angle 3 inches from turf, from which the stone rises abruptly.

Stone XXVIII.—Height 2 inches above turf: almost entirely overgrown except a small portion to N. Flat.

Stone XXIX.—Pointed at both ends. Slopes towards N. Smooth flat surface and sides. A depression in turf at N. only, where its height is about 1 foot. The thickness of stone appears to be only 6 inches at N.E. point, whilst on the S.W. side it is 2 feet, to which it gradually rises from N. and N.E. The stone is thicker at S. than at N.N.W.

Stones XXX. and XXXI.—Slight depression in turf between and to the E. of these stones. Flat and fairly smooth; height 1 inch or 2 inches from turf. No. XXX. slopes very slightly to N., No. XXXI. somewhat considerably to N. and E.

Stone XXXII.—Of the nature of a stump, but rather larger. Slight depression to S.W. Mound of turf to N.E., E., and S.E., where the stone only rises 2 inches. On S.W. it is 1 foot high. Turf grows in places on top, which is rather flat. Rough at sides, sloping abruptly from top at S. and N.W.

Stone XXXIII.—In slight depression, sloping slightly towards ditch. Fairly flat surface. Height about 1 foot. Point to N.E. only 3 inches above turf.

Stone XXXIV.—In a marked depression on inner bank of ditch, particularly marked at N. and E. Somewhat heart-shaped, flat and fairly smooth. About 6 inches in height, with turf growing up sides everywhere, except at W. and S.W.

Stone XXXV.—Flat, smooth surface. Slopes slightly towards S.W. On W. slopes off to turf. On E., 9 inches high.

Stone XXXVI.—Smooth, but uneven surface. Slopes slightly to E., and partly overgrown with turf in centre and to S. and S.S.W. At N. and N.N.W. it is 3 inches high, but turf runs up to level of stone elsewhere.

Stone XXXVII.—Lies in slight depression, which deepens considerably to E. and S.E. Slopes slightly towards ditch and N., with fairly smooth, flat surface. At W., 2 feet in height, and at E. 2·3 feet. This stone is cleaving lengthwise, or, rather, horizontally into three slabs. (See photograph, Fig. 3.) At N. its height is only 10 inches. Upright sides all round.

Stone XXXVIII.—Small flat stone, level with the turf, which is growing over it. Plan shows stone appearing above surface. Slopes to N. and E.

Stone XXXIX.—On slight elevation. Broken into three pieces, all of which are becoming overgrown with turf. The N. piece is nearly level with turf. The middle has rounded surface, rising to about 6 inches above turf. The piece to S. slopes from N. end to S., where it reaches the turf; the N. end of this piece is 8 inches above turf.

Stump 7.—Much overgrown with turf. A piece of stone, 9 inches by 6 inches only appears above the surface. Plan shows the probable outline with turf removed.

Stones XL., XLI., and XLII.—Together in a mass in slight depression. (See photograph, Fig. 3.) No. XL. slopes to S. and S.S.W.; highest point at N. 1½ foot above turf; the S.E. and N.W. points are about 10 inches from turf; at S. and S.S.W. it meets the turf. No. XLI. slopes from the S.E., meeting the turf level under No. XLII.; rather rough surface; at N.E. 1·5 foot from turf, at S.E. 1·3 foot, and at S.S.W. 1 foot. No. XLII. overlaps No. XLI. to S.E., and slightly over No. XL. to N.E.; thickness, about 1 foot at S.E.; slopes to centre, where it is only 4 inches from turf. At S.E. end its height is about 1½ foot.

Stone XLIII.—Slopes very slightly towards N.W. Flat and smooth surface. Runs to turf on N.W., S.E., S., and S.W. At S.E. it is about 4 inches above turf.

Stump 8.—Very narrow, just appearing above turf.

Stone XLIV.—Flat, sloping slightly towards ditch. Height about 7 inches at N.W. S.S.E. and N.E. corners overgrown with turf; very little of the stone at S.E. shows above turf. Uneven and weathered.

Stone XLV.—Flat, with uneven weathered surface and fractured. More than half the stone is overgrown with turf at intervals.

Stone XLVI.—Nearly flat, sloping slightly towards N.N.W. Fairly smooth surface. "Shoulder" across middle, height 7 inches above turf. Turf growing across depression below "shoulder." A stone overgrown, to S.S.W. of XLVI., is dotted on plan.

Stumps 9 *and* 10.—Small stones, just appearing above surface.

Stumps 11 *and* 12.—Ragged stones, broken off, just appearing above surface.

Stump 13.—This stump, leaning towards E., was only revealed by excavation.

Stones outside S. Causeway.—Fairly large, long, and narrow stone, height at E. 1·3 foot from surface. Stump close to. Two rounded stones a little above turf level, on side of S. rampart.

Two Stones in Ditch.—In ditch on S.W. One long and narrow, about 8 inches in height; the other rising 1 foot above surface.

There are other small stones here and there at Arbor Low, which seem to be hardly worth recording, although they might prove to be somewhat larger if exposed by excavation.

APPENDIX IV.

Explanation of the Plan and Sectional Diagrams of Arbor Low, Plates XXXVIII. and XL.

The plan has been delineated to a scale of 240 to 1, or 20 feet to 1 inch. A scale of metres is also given for the sake of continental archæologists. The square, which is 320 feet (98 metres) on each side, encloses about 2⅓ acres of ground, which shows a fall, from the top of the tumulus opened by Mr. Bateman in 1845 to the northern corner of the plan, of 24·5 feet (7·47 m.), as indicated by the contours of 6 inches vertical height. These contours have been numbered by sloping figures. The stones are numbered in Roman figures, and some of the smallest stones and the stumps are marked by Arabic numerals. The numbered "finds" are indicated by heavier sloping figures, a list of which is given below. The Governmental boundary stones are represented by black squares, and the position of the Notice Board in the centre has not been omitted. A spot on Stone III. marks the actual centre of the circle, from which point two circles have been described of diameters of 190 feet (58 metres) and 250 feet (76·2 m.) respectively, drawn with a view of showing to what extent the crest of the vallum and the middle of the surface of the fosse deviate from the true circle. The positions of the excavations are denoted by rectangular enclosures, through which the contours have not, in all cases, been continued. The sides of the ditch excavations have been represented by escarp-shading, and the limestone *in situ* not actually forming part of the sides of the fosse is indicated as rock; whilst the dotted bands in Sections 1 and 6 are used as symbols for clay. The "lettered" lines traversing the cuttings across the fosse and vallum indicate the lines on which the sections have been taken (Plate XL.). Various symbols have been used in the sections for representing the nature of the silting of the ditch and the material forming the vallum; and the "finds" have been projected into the sections on the lines which happen to be nearest.

In the case of the section on the line Q-R of plan, given on Plate XL., the vertical dimensions from the datum-line to the turf-level are 0·5 foot less than the actual length represented by the dotted lines. This was caused inadvertently by raising the datum-line in plotting the section without altering the actual figures. The slight error, however, in no way misrepresents the form, in section, of the excavated vallum and fosse.

List of Numbered Finds.

1. Thirteen teeth of ox, bottom of ditch, depth 5·4 feet.
2. Pieces of red-deer's antler, depth as No. 1.

3. Rudely-chipped stone implement, depth 1·2 foot. (Plate XLII. No. 3).
4. Doubtfully-artificial stone scraper, on "old surface line." (Plate XLII. No. 4.)
5. Worked flint flake, depth 0·7 foot. (Plate XLII. No. 5.)
6. Worked flake of black flint, depth 0·5 foot. (Plate XLII. No. 6.)
7. Chipped end-scraper, depth 0·5 foot. (Plate XLII. No 7.)
8. Stone scraper, with bevelled edge, depth 1·2 foot. (Plate XLII. No. 8.)
9. Fragment of human ulna, depth 0·5 foot.
10. Outside flint flake, worked, depth 0·8 foot. (Plate XLII. No. 10.)
11. Worked flint, depth 0·8 foot.
13. Flint saw, depth 1·5 foot. (Plate XLII. No. 13.)
14. Small, narrow, flint scraper, depth 1·4 foot. (Plate XLII. No. 14.)
15. Large flint scraper, depth 2·3 feet. (Plate XLII. No. 15.)
17. Six large flakes of black flint, found together, at a depth of 2·7 feet, on a ledge of the solid side of the northern causeway. (Plate XLIV.)
19. Fragment of Romano-British pottery, depth 0·5 foot.
20. Flint knife, of broad, leaf-shaped form, depth 0·9 foot. (Plate XLII. No. 20.)
21. Rough scraper, depth 1 foot.
22. Worked flint flake, depth 1·2 foot.
24. Flint flake, depth 1·8 foot.
25. Long chert flake, with rough serrations, depth 2 feet.
26. Small white flint knife, finely chipped, depth 3·2 feet. (Plate XLII. No. 26.)
27. Flint end-scraper, depth 0·9 foot. (Plate XLII. No. 27.)
28. Flint end-scraper, depth 1·4 foot. (Plate XLII. No. 28.)
29. Two-thirds of a kite-shaped flint arrow-head, depth 3 feet. (Plate XLII. No. 29.)
30. Combined end- and side-scraper of flint, depth 0·7 foot. (Plate XLII. No. 30.)
31. Calcined chert scraper, depth 0·9 foot. (Plate XLII. No. 31.)
32. Narrow, black, chert scraper, depth 1·6 foot. (Plate XLII. No. 32.)
33. Black chert flake, depth 1·8 foot.
34. Small, discoidal, flint scraper, depth 0·6 foot. (Plate XLII. No. 34.)
35. Fragment of Romano-British pottery, depth 0·3 foot.
36. Flint flake, depth 0·3 foot.
37. Small chert scraper, depth 4·8 feet. (Plate XLII. No. 37.)
38. Flint flake, depth 0·5 foot.
39. Small horn of red-deer with four tines, depth 4·6 feet.
40. Worked flint flake, depth 1·2 foot. (Plate XLII. No. 40.)
41. Small chert flake, depth 0·4 foot.
42. Fragment of pottery (? Romano-British), depth 1·3 foot.
43. Barbed and tanged flint arrow-head, found on bottom of ditch, depth 5·7 feet. (Plate XLII. No. 43.)

APPENDIX V.

Relief Model of the Arbor Low Stone Circle.

On commencing the survey of Arbor Low the subsequent production of a relief model was fully contemplated, so that much care was given to details. For the purpose of this model a block of well-seasoned mahogany was obtained, measuring 2 feet square and 3 inches thick. The highest portion of the model was represented by the surface of the block. The contours having been drawn on the face of the wood, the lowest-level contour was firstly cut down to the proper depth in accordance with the scale of the model. Each level was separately worked out, the result showing a fall of 24½ feet (7·47 metres) in the ground from top to lowest point. When the carving was finished, the surface exhibited little steps, each representing one foot vertical height. The next process was to pare the steps down to a smooth surface, finishing with sand-paper.

The miniature stones were modelled to scale in soapstone during leisure moments at Arbor Low. They were fixed into the body of the model by undercutting and plaster.

The final processes were the painting of the stones and the grass-green surface, the indication of the excavated portions and the position of the "finds," the numbering of the stones, the lettering in white oil paint, and the printing of a lengthy title on a polished and ebonized mahogany block. Four hundred and fifty hours were bestowed on the formation of the model.

Fuller details, with three illustrations, have been published in *Man* (Anthropological Institute), October, 1903, No. 84, p. 145.

XXII.—*The Submerged Greek and Roman Foreshore near Naples.* *By* R. T. Günther, *Esq., M.A., Fellow of Magdalen College, Oxford.*

Read 22nd January, 1903.

'Soleo enim et in aliena castra transire, non tamquam transfuga, sed tamquam explorator.' Seneca, Epistul. Mor. I., Ep. II.

Some years ago it occurred to the author that certain submerged ruins in the Bay of Naples were sufficiently well preserved to repay investigation with a view to supplementing the history of the post-Roman land-movements, as recorded upon the columns of the *Macellum* of Puteoli, commonly known as the "Temple of Serapis."

The discovery that one submerged "rock" after another showed clear signs of artificial origin was so fascinating, opening as it did a new field for research, that we were led to add to our geographical investigation a survey of the sunken antiquities.

It must be borne in mind that geological evidence indicates that the Roman shore, then 16 feet higher than now, had fallen close upon 40 feet by the twelfth century, remaining at that low level for at least 300 years,[a] and that it was rising to the present level in the first half of the sixteenth century.[b]

By being borne down into deep water, the ancient buildings have been preserved from the weathering they would have suffered had they remained at the surface.

During the summer of 1901 we examined ruins near the edge of the sea at

[a] The upper erosion-line upon Capri then etched is more deeply cut than the present line, which has been some three and a half centuries in forming.

[b] For an account of the rise and fall of the land see the author's paper in the *Geographical Journal* for August and September, 1903.

many places round the bay, but it was at the southern extremity of the promontory of Posilipo that our researches were most amply rewarded.

The sinuous coast-line of the volcanic ridge of Posilipo terminates abruptly to the south-west. At Coroglio the cliffs of tufa, 450 feet high, yellow and bare save for a fringe of vegetation at the summit seen in outline against the sky, descend sheer into the sea. The cliffs bend round a bay, the Cala di Trentaremi, where the rubble from the quarries on the strip of beach and the debris of a landslip piled up the barren cliff side enhance the arid look of this wilderness of rock. Further on, the dark-mouthed caves in which the sea roars lend the cliffs an air of mystery from which the weird rock at the headland, the Scoglio di Virgilio, does not detract.

We round the Scoglio and all is changed; little headlands, vine-clad, rise picturesquely from the water, the little coves between them are backed by a strip of beach on to which opens the vineyard gate; and so in and out till the Capo is reached, where the coast, rounding off, bends towards Naples.

Coves, cliffs, headlands and the water lapping them, such is the coast as we see it now; otherwise did the Romans. A foreshore outlined the coast; the Coroglio cliffs no longer fell precipitous into water, they bordered a rocky way; in the caves in which corals now luxuriate the Roman workman could sit chiselling the block of tufa green from the quarry. Again rounding the Scoglio di Virgilio, how different a scene: a Roman road wound its way at the foot of the headlands, passing through the most prominent; groups of buildings stood by it down to the water's edge, and often on massive piers into it, as the fashion among the Romans was.

The buildings of southern Posilipo were in three principal groups or Regions, as we shall call them, of which the Gaiola Region was the most important. Instead of being an island, the Gaiola rock was a little hill upon a promontory which extended for a quarter of a mile beyond the present shore: around and on it stood splendid villas, colonnaded temples, and the little pavilions by the sea such as we see painted upon many a Pompeian wall; under the lee of the promontory rising brown out of the blue water was a row of massive piers, the mole of the little harbour; on the heights above were the odeon, the theatre, the temples, and thence the great tunnel started which opened on to the highway leading to Puteoli.

The line of houses was continued to the Region of Marechiano, in which stood prominent the great building associated with the name of Vedius Pollio, and at the eastern extremity, within sight of Naples, the Rosebery Region; no tradition

remains of it, and excepting the solitary Pietra Salata no trace above water, but from the nature of the submerged remains we estimate the buildings to have yielded in splendour to none along this coast.

But it is not merely as a favourite seaside resort that we should view this line of coast, for in addition to the natural beauty of position and the facilities afforded by a foreshore, the geographical position of the promontory, advancing almost midway between the promontories of Minerva and Misenum, would have rendered it a natural halting place in the early days of the Greek settlements, when active intercourse was kept up between the colonies of Paestum, Cumæ, and Pithecusa.

In the summer, the season of ancient navigation, the daily breeze blows in to Naples from the sea, and a port at the Point of Posilipo, being so much to windward of the head of the bay, would have great advantages. These natural conditions held good in the Greek days. The settlers who wished to keep in touch with the mother colony could have found no happier site in the bay for the town which they are known to have founded, and which was called Parthenope, and later Palaepolis. The site of this city has been forgotten, and there has been much speculation about it. Some authorities place it on the ridge of Pizzofalcone or on the Castel dell' Ovo, others in the plain or at the foot of Vesuvius where Torre del Greco now lies, and others again on Posilipo, and that is the site that corresponds best with what Livy, the only authority of antiquity who makes a definite statement concerning it, tells us. He says:

> Palaepolis fuit haud procul inde ubi nunc Neapolis sita est. Duabus urbibus idem populus habitabat. . . . . Jam Publilius inter Palaepolim Neapolimque loco opportuno capto diremerat hostibus societatem auxili mutui qua ut quisque locus premeretur usi inter se fuerant. Liv. viii., 22.

Considering then the favourable position of the south end of Posilipo for commerce in the early days of navigation, the indications contained in Livy's statement, and the fact of a city leaving no trace in a district which has never ceased to be historical, may we not conjecture that Palaepolis stood upon the Gaiola Region, and that whatever traces of it might have been left under the later buildings of the Romans were lost to us when the foreshore sank?

THE SUBMERGED REGIONS OF POSILIPO.

I.—The Rosebery Region.

At the Capo di Posilipo, the furthest point of the hill visible from Naples, the low cliffs end in a flat shelf of rock, which is partly exposed when the water is low. Upon the surface are artificially cut grooves and hollows, the scars of the foundations of buildings which have long since been washed away, and in several places[a] small patches of ancient concrete still adhere to the rock. (**V.** Plan 1.)

Immediately beyond the turning of the Capo the dark pine woods on the hills map out the fine property which formerly belonged to the Bourbon Prince Luigi, but which is now in the possession of the Earl of Rosebery. The natural foreshore has been more or less concealed by a retaining wall 10 to 16 feet high, and a narrow quay, but in the ancient buildings and artificial caves may still be seen indications of a bygone population and of the subsidence of the land.

Extending parallel to the shore is a modern breakwater, which, like many of those around the coast, is a *scogliera* made of huge rough blocks of lava piled up loosely to a height of some 6 feet above the water. It is 213 yards in length, and was built for Prince Luigi by convict labour, ostensibly to enclose a fisherman's harbour, but really to shelter the landing place of his villa. The western end rests upon a part of the shelf of rock already mentioned, which seems to have been divided from the shore by an artificial cutting, now forming the narrow entrance to the harbour, but which we believe to have been originally cut for the ancient coast road between Neapolis and Puteoli.

Outside the Bourbon breakwater we discovered the foundations of an important group of ancient buildings spread over a square area which has the breakwater for its base and the Pietra Salata for its southern angle. This "salted rock," about 218 yards from the shore, is a mass of concrete about 11 yards long, 2 yards wide, and standing 3 to 4 feet out of the water. With the land at a higher level the situation must have been superb, but now not a stone is to be seen above water, save only the Pietra Salata.

[a] Near where the short modern sea wall shelters the landing place below the Villa Volpicelli.

A. T. Gunther, del.

C. E. KELL & SON, LITH.

PART OF A SUBMERGED GREEK AND ROMAN FORESHORE NEAR NAPLES

PART OF A SUBMERGED

PLAN I. The Rosebery Region
Scale 1:1500

Modern Work. Roman.
Land believed to have been above water in Roman Times.
Rocky margins. Soundings in metres.

D GREEK AND ROMAN FORESHORE NEAR NAPLES

On summer mornings the positions of the old houses are clearly marked by the boats of the shore fishermen, who earn a precarious livelihood by raking for shell-fish and other *frutti di mare* in the crannies of submerged walls. In rough weather the white crests of breaking waves and streaks of foam indicate more precisely the ancient buildings and the forces which have compassed their ruin.

Some of the old walls are submerged 15 feet and more, but others come so close to the surface as to be dangerous to ill-directed small boats, and according to our Consul's report for 1901 even government steam launches occasionally ground upon them.

A general survey of the area on which the submerged ruins stand is shown on Plan 1. It is possible to wade from the Pietra Salata southwards to a structure shaped like a bastion, from which a massive wall can be followed for about 76 yards in an easterly direction. Outside this wall the water rapidly deepens, within it is relatively shallow. There are several indications of small chambers built close to the wall, and exhibiting a complexity of structure which seems to indicate that the building must have been intended for purposes other than those of mere sea-wall; perhaps it was the lower part of a little temple, or *sacellum*, by the sea. Further east, and almost in the same straight line, is the danger to navigation known as the *Carrucciel' i fuor'*; it was probably the eastern angle of the structures described, although it is now separated from them by a considerable space of water 6 feet deep.

Within these outer works are three rectangular rock and concrete foundations, numbered **II.**, **III.**, **IV.**, on Plan 1, the two longer ones measuring about 65 yards by 20 yards, and raised about 6 feet above the present sea bottom. From these the lower courses of some walls rise to within a yard of the surface. The longer sides of the foundations are all parallel, and face south-south-east. In the case of the two southern foundations, the superstructure is in the best state of preservation at the north-east end, that being the most sheltered from storms. Those details of the superstructure which are still traceable are sufficiently indicated in the plan, and so we need only state here that the end wall of the southern foundation was apparently strengthened by five buttresses which may have supported arches like those shown on one side of the triangular foundation represented in fig. 3, and that in the easternmost (**IV.**) the fabric has a more complicated structure, which is not easy to unravel.

We believe that we have here the foundations of three Roman buildings of the type represented in mural paintings found in Pompeian houses. It will be noticed

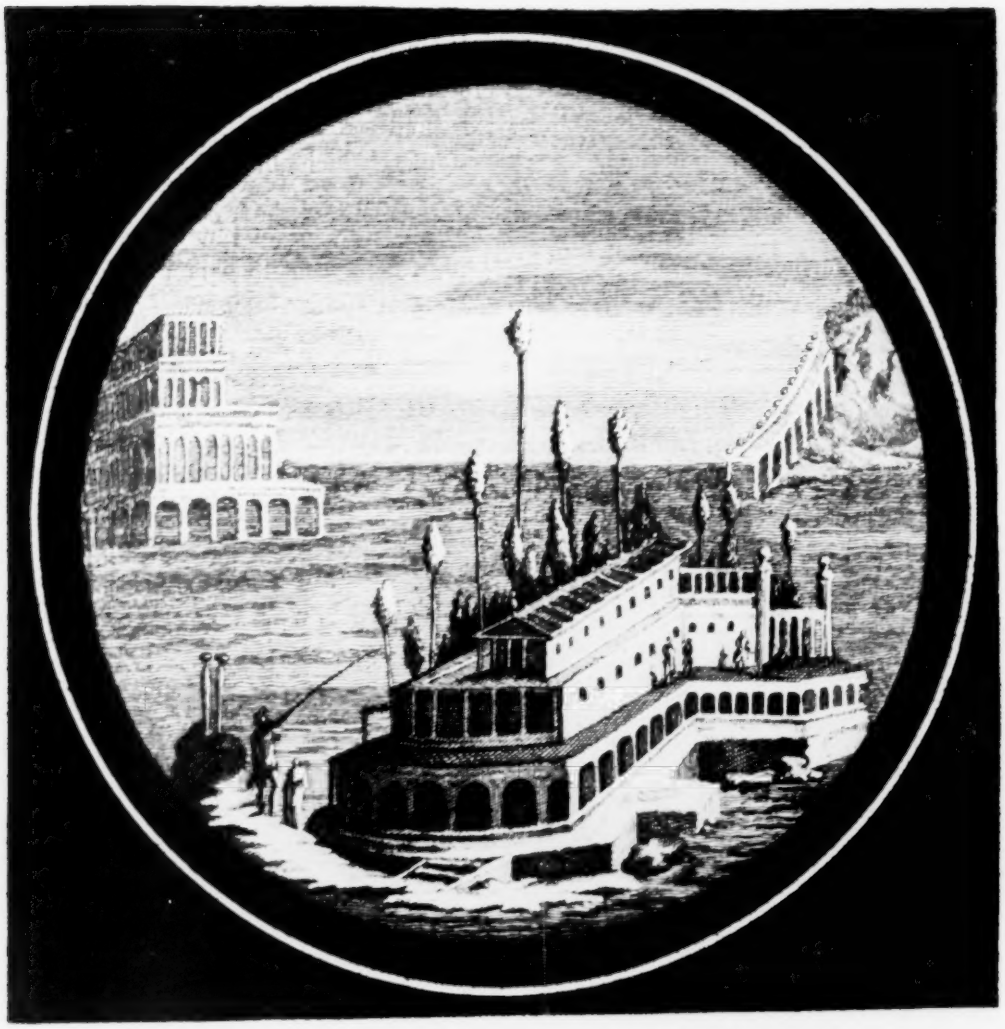


Fig. 1. Wall painting showing foundation of a building by the sea.

that in the paintings of seaside villas of the type reproduced in fig. 1,* the buildings

* Fig. 1 is taken from *Le Pitture antiche d'Ercolano*, ii. 285, which has also been copied by Roux aîné, iii. pl. 16. Compare also Roux aîné, iii. pls. 12, 25, and 28, and Mau, fig. 270. The buildings in our illustration show the covered galleries or *cryptoporticus* of Pliny (*Epist.* II. 17), and the open terraces or *hypaethri* of Vitruvius (v. 31). On the rock to the left of the foreground are two *bitts* or posts for the mooring of boats, cf. Gunther, *Geographical Journal*, Sept., 1903, fig. 12 and Footnote to p. 274.

are represented as standing upon raised rectangular foundations of precisely the same character as those which we claim to have discovered here, and which have also been found below other ruins, to be presently described. The rounded bastion is very like the structure similarly situated, depicted in the fresco of a house within a sea-wall ornamented with statues. (Fig. 2.)[a] In the absence of

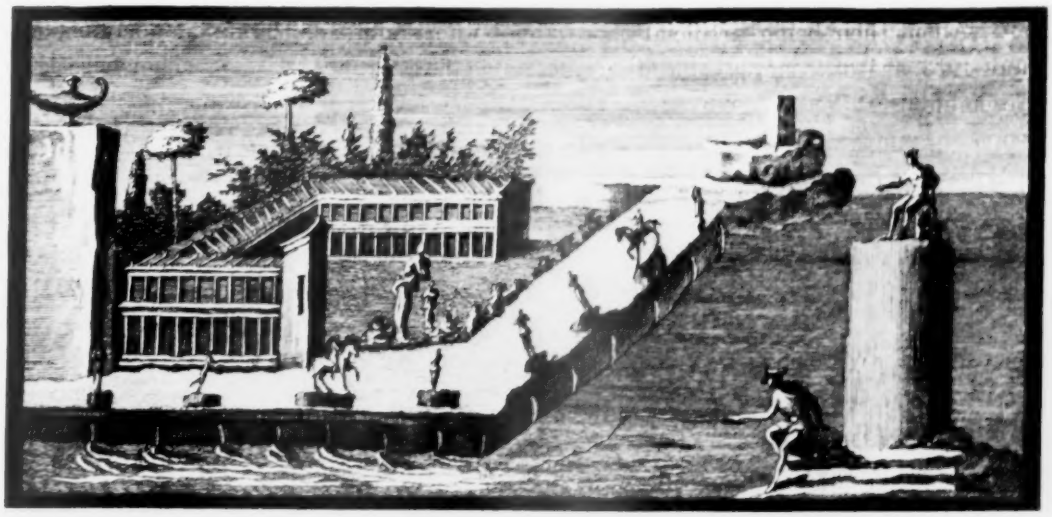


Fig. 2. Wall painting showing a sea-wall. On the pedestal is a statue of Hercules.

other evidence we claim that it is very possible that here we have concrete foundations of houses such as those which Horace had in his mind when he wrote:

> You on the verge of death contract for blocks of marble to be hewn, and unmindful of the grave, are rearing mansions and are all eagerness to thrust backward the shores of the sea that roars against Baiae; for not enough does the bound of the mainland enrich you.[b]

Soundings made inside the Pietra Salata show that the depth over most of the area is only 10 feet or less, but that there is a depression of some 20 feet which runs in from the south-west. The southern limit of the depression is marked by two artificial structures which rest upon the same rock as the Pietra Salata, and which probably formed part of the same edifice. The northern limit is formed by the *Tripolo*, a large rock, upon which we have not noticed any ancient foundation,

[a] From *Pitture antiche d'Ercolano*, ii. 295. The original was found at Gragnano.

[b] Od. ii. 18; *cf.* Od. iii. 1 and 24, also Virgil, Aen. 9. 711.

but which must have been high and dry in the Roman period. In the depression stand four rectangular piers of concrete each close upon 20 feet square. The piers are about 16 feet in height, the outer one rising to within 13 feet of the surface from a depth of 30 feet and the innermost to within 3 feet from a depth of about 16 feet. If we assume that the lowest pier originally projected about 4 feet above the surface, the water would have been two fathoms deep.

About their being artificial there can be no doubt, for the upper portions at any rate are of concrete and their shape is not a natural one. They closely resemble the piers employed by the Romans as breakwaters or defences to some of their harbours, and they may have been constructed either for the purpose of breaking the force of the waves, which would otherwise have run up the depression and have broken violently at the foot of the buildings, or to shelter a small harbour (fig. 11), or else as supports for ornamental columns or for statues, like the piers represented in several Campanian frescoes. (Fig. 2.) In the pictures reproduced in *Archæologia*,[6] and in fig. 3 similar piers carry the ends of a wooden pavilion overhanging the sea, and bridges like that represented in an unpublished fresco from a villa at Boscoreale, now in the British Museum,[7] were not unfrequently thrown out to the piers from the shore. This fresco measures 13 inches by 12 inches. In the foreground are four or five figures near a small three-storied pavilion on the edge of the water, watching the departure of a sailing boat. On the right is a man seated and fishing from the bridge. In the distance two groups of buildings can be discerned across the water. A second sailing boat, almost obliterated, was painted on the left of the pavilion, but it is difficult to make out.

At the back of this region traces of ancient work are still discernible under the low cliffs below Villa Rosebery, where a few excavations in the tufa, now almost obliterated, are the last vestiges of buildings which once overlooked the foreshore.

One of these ancient sites is the Peschiera, at the extreme east of the property, in some large caves hollowed out of the solid rock and furnished with an ingenious arrangement of channels and sluice-gates for renewing the water within. The caves seem to have been enlarged and adapted for pisciculture when that industry was actively carried on in several places in the neighbourhood under the Bourbon rule; but now, either owing to the jealousy of the fishermen,

[6] *L. Pilotti inedite d'Ercolano*, 1760, ii. pl. li. p. 277. The original was found at Gragnano.

[7] Vol. lxv. 235.

[8] Register No. 99. 2. 15. 2. Compare also Roux sine. ii. pl. 23.

to the raids of poachers, or to the lack of financial support, it has, like all other appurtenances for fish culture along the Posilipo coast, been allowed

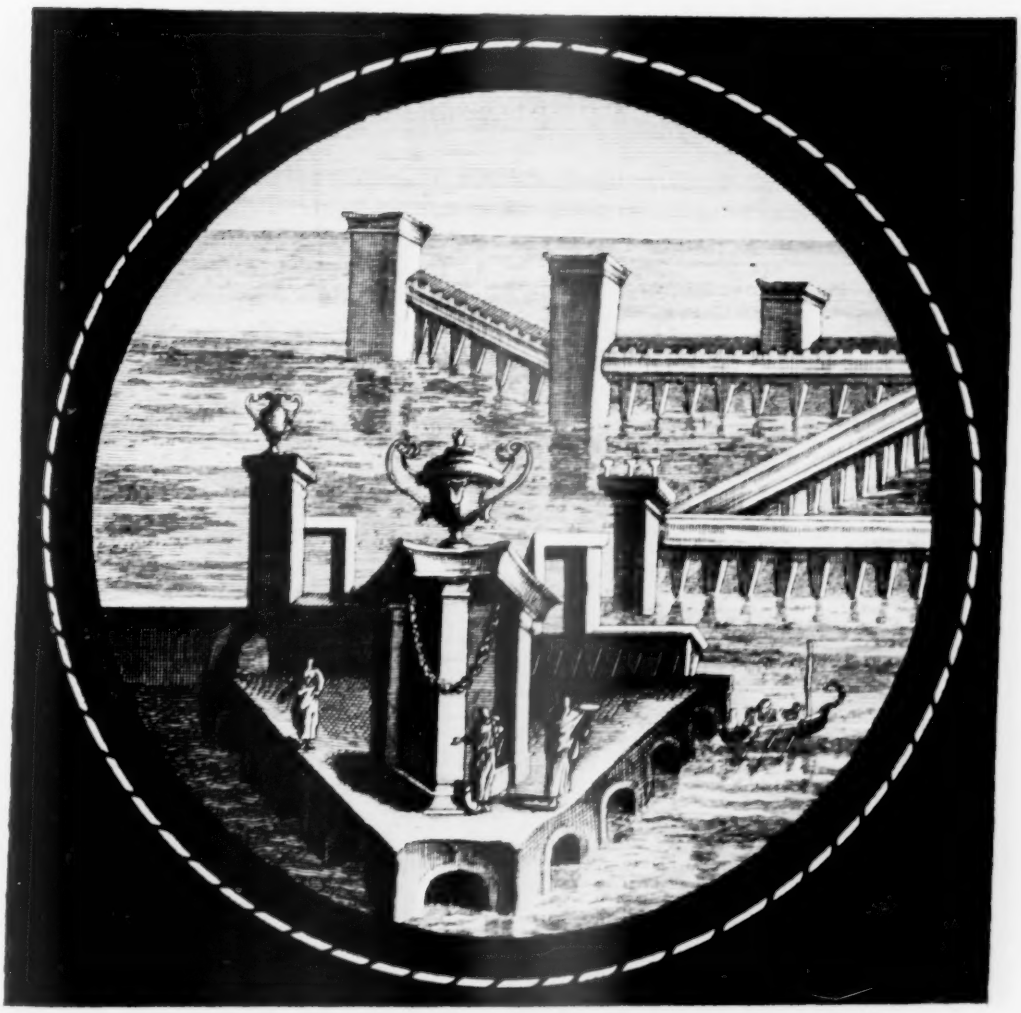


Fig. 3.—Wall painting showing galleries supported by piers in the sea and a triangular foundation resting upon arches.

to fall into decay, and the outer cave, owing to the collapse of its roof, notwithstanding a masonry arch, is open to the sky.

It is difficult to believe that the solid rock was excavated on so large a scale solely for cool fish-tanks; it is more likely that we have here the quarries

whence the stone used in the erection of the neighbouring buildings was obtained, and which were subsequently adapted for use as a Peschiera. This view is supported by the fact that one of the caves has been excavated down to, but not beneath, the water-level, whereas those which have been adapted as fish-tanks have been deepened so as to contain from 2 to 3 feet of water.

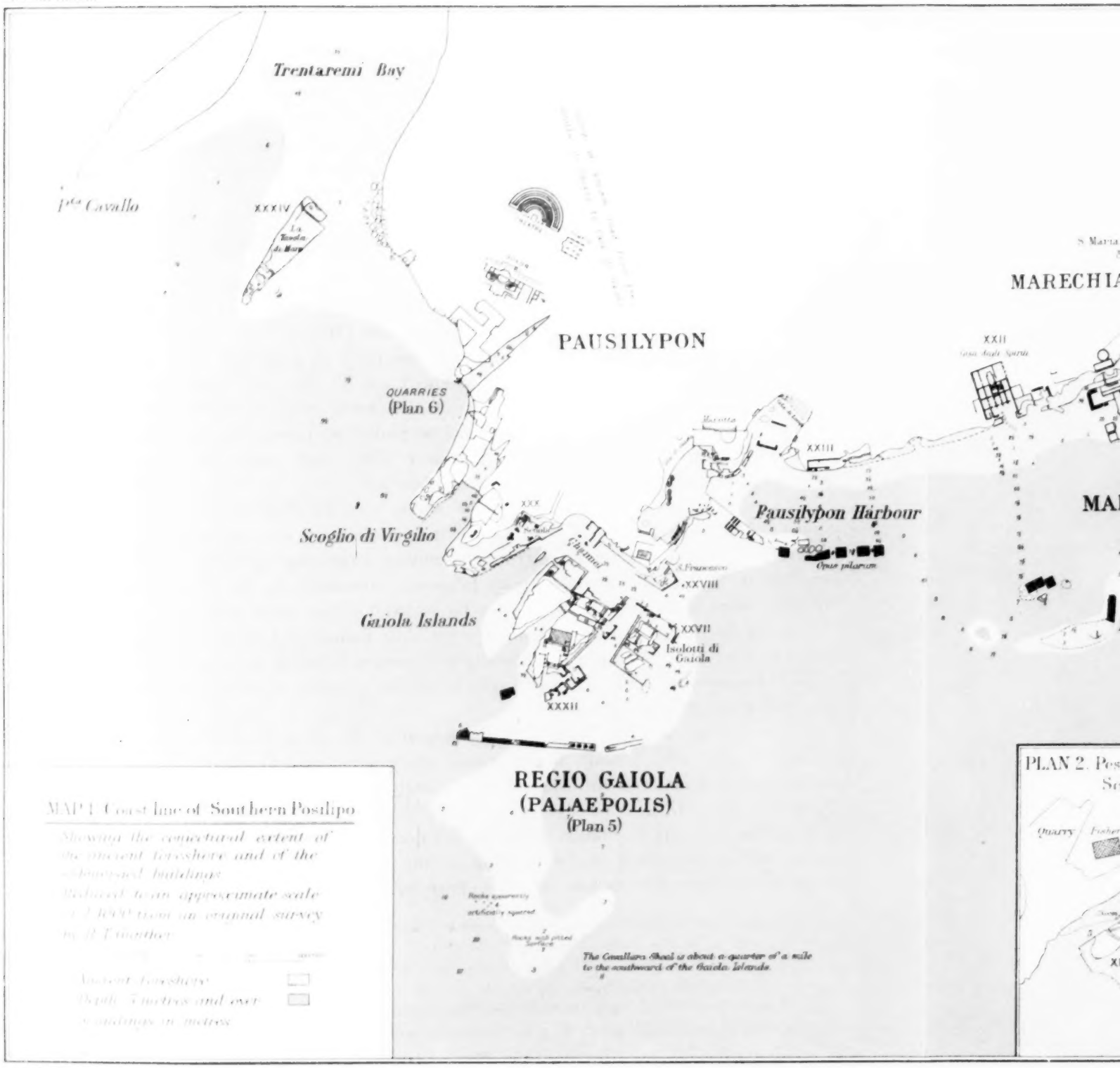
The outer parts of the excavation (**VI.** *b*, *c*) seem to be of a much greater antiquity than the inner, and still show traces of ancient plaster lining. The groove of erosion which we associate with the period of greatest submergence of the land is well marked on the face of the cliff, and is continued into the mouth of the cave, thus attesting its antiquity.

Fig. 4. Artificial Caves at Villa Rosebery. (Site **VI**.)

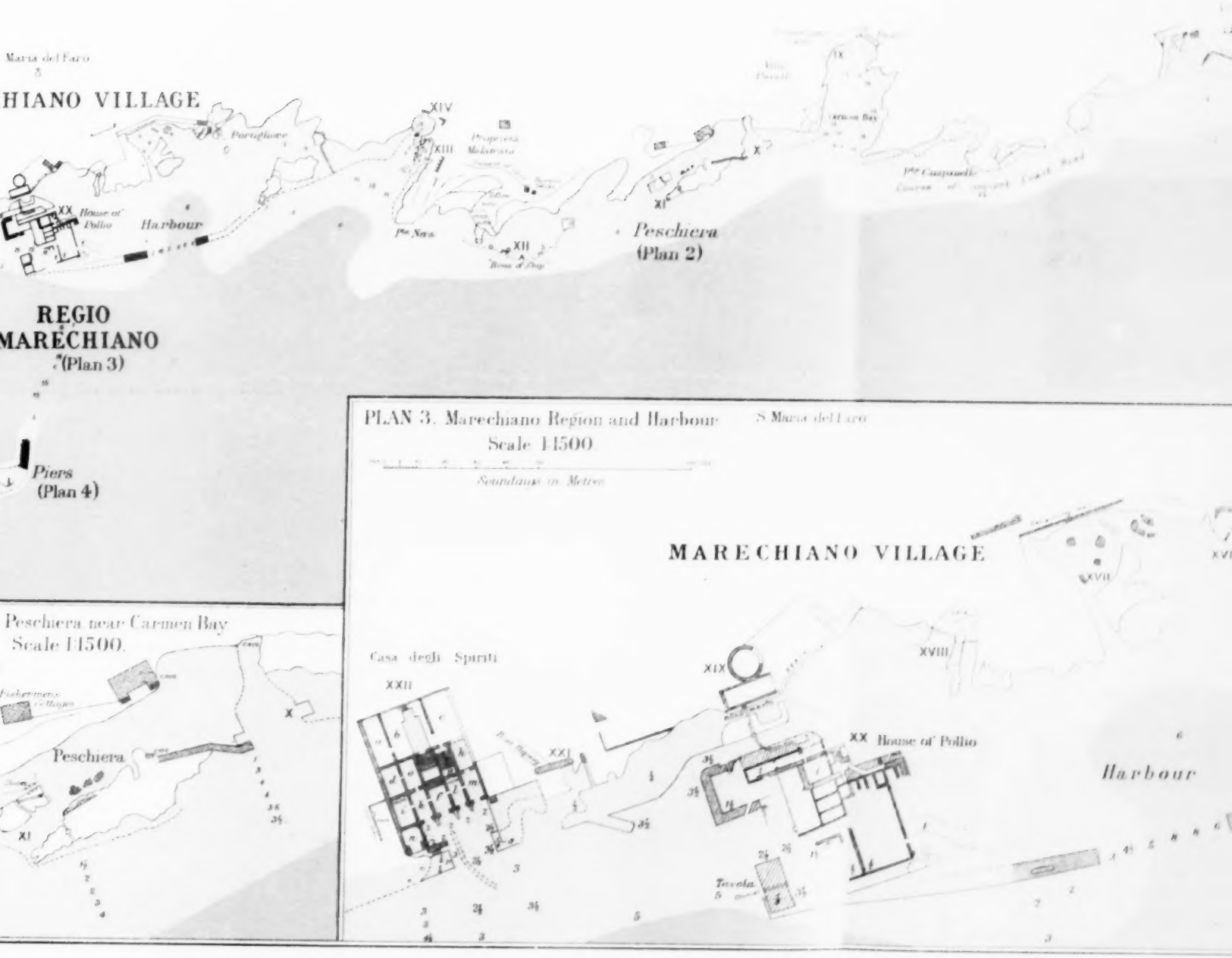
The low artificial cave (fig. 4, *a*) near the mouth of the western outlet of the Peschiera, is submerged to a depth of 3 feet. It seems once to have been longer, but the roof being thin has partly fallen. Just beyond and lower down another artificial cave is outlined in the rocks (Plan 1, a^1).

An ancient building stood upon the site (**VII.**) of the smaller of the two modern houses on the sea, which has been built over a fisherman's cottage of great age. The living room of the cottage, which extends into the rock behind, has become the basement of the house; but so little is the floor raised above the water, that, notwithstanding the modern breakwater, waves frequently dash over it. It is unlikely that this fisherman's cottage was built in so uninhabitable a situation; we prefer to accept it, together with the submerged caves already mentioned, as having been part of the group of Roman buildings erected at a higher land-level. The rocks in front of the cottage bear marks of having been quarried, and perhaps of the foundations of other buildings. No pieces of Roman sculpture or other antiquities have been found here, so far as we are aware, unless the ancient columns which used in former years to stand, connected with chains, below the Villa Gerace, came from this locality.

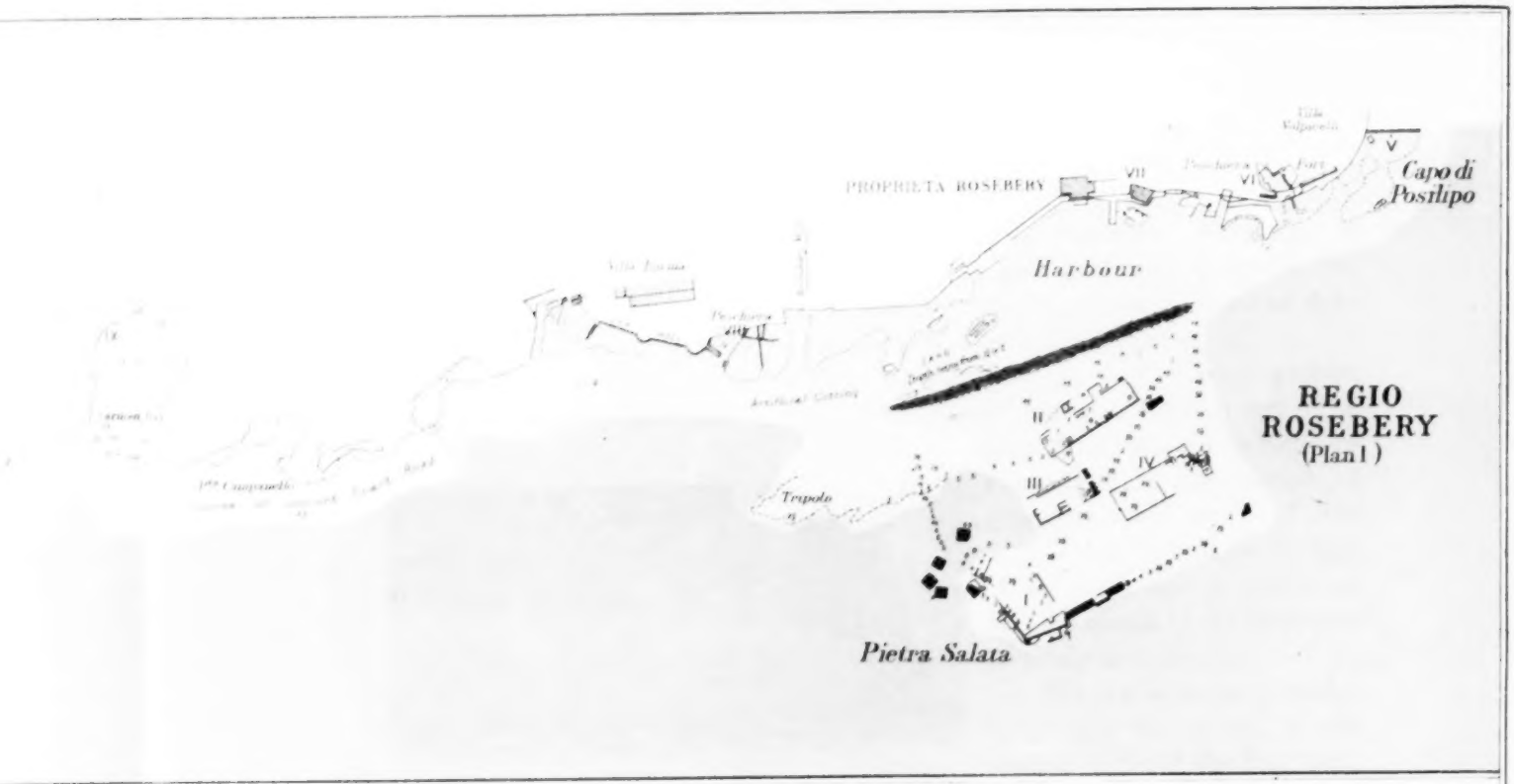
It is strange that this important quarter should have disappeared without leaving any local tradition of its existence. It should, however, be remembered that the little old church of S. Maria Fortuna in the vicinity has been supposed

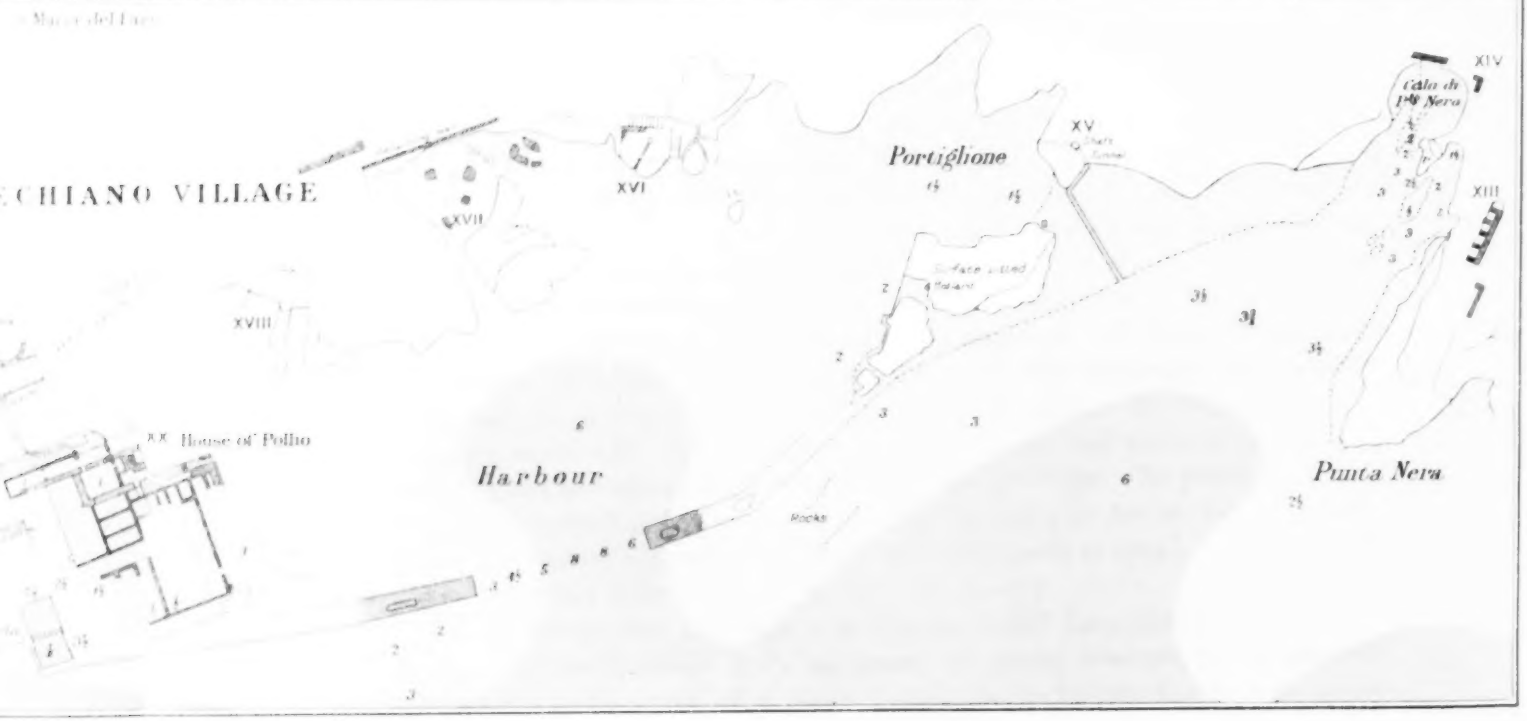

Trentaremi Bay
Pta Cavallo
XXXIV
La Tavola di Mare
PAUSILYPON
QUARRIES
(Plan 6)
XXIII
XXII
Casa degli Spiriti
MARECHIA
Pausilypon Harbour
Opus pilarum
XXX
Scoglio di Virgilio
Crypta
S. Francesco
XXVIII
Gaiola Islands
XXVII
Isolotti di Gaiola
XXXII
REGIO GAIOLA
(PALAEPOLIS)
(Plan 5)
The Gaullara Shoal is about a quarter of a mile to the southward of the Gaiola Islands.
MAP I. Coast line of Southern Posilipo
Showing the conectural extent of the ancient foreshore and of the submerged buildings
Reduced from approximate scale 1/1800 from an original survey by H. Emanuel
Ancient foreshore
Depth 3 metres and over
Soundings in metres
PLAN 2. Pos
Sc
Quarry
Fisher

A SU



SUBMERGED GREEK AND ROMAN FORESHORE NEAR NAPLES.


PROPRIETA ROSEBERY
Capo di Posilipo
Harbour
REGIO
ROSEBERY
(Plan I)
Pietra Salata


CHIANO VILLAGE
Portiglione
Harbour
Punta Nera
House of Pollio
Rocks

to derive its name from an ancient temple to Fortune, somewhere near. This temple may have occupied one of the foundations of the Rosebery Region.

Foreshore between the Rosebery and the Marechiano Regions.

Between the Rosebery and Marechiano Regions no conspicuous ruins of Roman buildings have remained, but such traces as we have been able to discern will now be described in topographical sequence (Map I).

In several cases we have found that the last parts of a Roman house to disappear are the *cuniculi*, which were hollowed out in the rock under the foundations; and although we cannot assert that every *cuniculus* indicates a villa, yet most of them do. In some places these rock-hewn passages are entirely submerged, but when they are only partially filled with water they are frequently used by fishermen as live boxes for their fish.

The channels which conduct fresh sea-water into the Peschiera of Villa Emma[a] (**VIII.**) may partly be such submerged *cuniculi*, a speculation which receives some support from an eighteenth-century engraving[b] showing ruins standing in the water upon the rocky ledge now traversed by the channels. The ruins were probably demolished when the sea-wall of lava ashlar was built.

Along the rocky stretch of shore between Villa Emma and Carmen Bay, we have not been able to recognise any vestiges of ancient buildings above or under water. However, in many places the rocks have been quarried straight down to a flat shelf at the edge of the water.

Carmen Bay or Cala Garofalo[c] is the largest of the coves along this shore. In the western side, beneath a picturesque overhanging growth of aloes and mesembryanthemum, two artificial caves of nearly equal size are excavated in the yellow tufa[d] (**IX.**). A passage at the back places them in communication with one another and with the beach. Part of the floor of the caves is 3 feet under water, but judging from the weathering of the rocks on either side of the entrance, the caves were ancient enough to have been quarried high above water.

[a] The Casa Cannonnate of Italian Admiralty charts. According to a tradition, Lady Hamilton lived here, and the Peschiera was designed by Prince Luigi.

[b] In the author's possession. It is dedicated to the Chev. Destournelles, and was probably engraved by A. Cardon, after a drawing by Bracci.

[c] Wrongly named Zaffarana in the *Carta topografica ed idrografica dei contorni di Napoli* (1818) of the French engineers, in which the name C. Garofalo has got adrift.

[d] The southernmost is 16 feet high, 42 feet broad.

A few yards beyond the western point of Carmen Bay and in front of two old labourers' houses lies a low rocky reef traversed by artificial channels, the sides of which still show grooves into which sluice-gates must once have fitted (Plan 2, **XI.***). We have no hesitation in identifying these structures as having belonged to fish-tanks, but as the water now ebbs and flows above the old partitions between the channels and tanks, it is clear that the Peschiera, although still an elysium for crabs and shellfish, has sunk below the level best suited for its purpose. On the side towards the sea was a strong wall. We have no record of this Peschiera, but we consider it modern and in use as recently as the Bourbon times, for the grooves for the sluice-gates are in a good state of preservation, and at the high Roman land-level the bottoms of the fish-tanks would have been dry. It is quite possible too that this Peschiera was constructed upon the site and partly from the materials of Roman ruins, and we find artificially cut rocks (**X.**) in the deeper water near the east end of the wall, which seem to preserve the outlines of the ancient building.

The headland of the Proprietà Malatesta is the most conspicuous on this coast, and is a well-known landmark for the fishermen. Under the much weathered cliffs of yellow tufa is the flat rocky ledge (*g*, fig. 7) to which the reader's attention has already been directed, and over which, as we believe, the coast road formerly passed. Below the eastern angle of the headland the submerged margin of the ledge shows many signs of having been formerly built upon (**XII.**). One remarkable submerged structure is the relief like a A cut upon the rock and commonly known as the "Bows of the Ship" by the fishermen, who have a tradition that it is the mark of a vessel which once ran ashore here. It is the last remnant of a foundation. Upon the crumbling cliff above, other vestiges show where a Roman house has been undermined, but from the scanty remains it is well nigh impossible to ascertain the scale of the original buildings, but that their magnificence must have been in keeping with the situation is clearly proved by the innumerable mosaic cubes and tiny fragments of fine coloured marbles which may still be picked up upon the beach, although such fragments are not to be found upon beaches a few yards distant on either side. "Und so sehen wir denn, wie die Welle vor unsern Augen mit den Herrlichkeiten der Vorwelt spielen darf." (Goethe, February 24, 1787.)

The House of the Cala di Punta Nera (**XIII.**) stands on the western side of the Malatesta headland overlooking the entrance to the little cove. Four vaults and fragments of walls still remain, and other ruins and a vault may be seen near the head of the cove (**XIV.**, Plan 3).

Within the Cala di Punta Nera a large rock (*r*) stands severed from the cliff, suggesting that the passage between the two was hewn through to permit the ancient coast traffic to pass inside, and thus avoid an exposed dip in the ground at the mouth of the cove.

II.—The Marechiano Region.

The point on the west of the Cala di Punta Nera is neither as high nor as prominent as the one on the east, but it is prolonged seaward for a considerable distance as a long low reef, sheltering the Portiglione. These low rocks bear many traces of Roman workmanship. (Plan 3.)

Near the cliffs is a round vertical hole (**XV.**), close on 5 feet in diameter, like the shaft of a well, and with water at the bottom: two horizontal tunnels open on its west and south-east sides. At present these tunnels are half submerged, the eastern one being 3 feet below water and 1½ feet above water, and the western, which is 6 feet high, being half in and half out of the water. The eastern tunnel is in connection with an artificial channel cut across the surface of some submerged rocks to the south-east.

Evidence is lacking which would enable us to assert positively the purpose of these tunnels and channel, we can only say that we have found essentially similar submerged rock-hewn passages in Trentaremi Bay and near Casa Marotta.

In their general proportions they resemble the *cuniculi* which have been described in many ancient sites. Those at Cervara are believed to have been used for the storage of water, "round shafts being cut at intervals, so that the cisterns should be accessible from above."[a] But so far as our experience of seaside houses goes, no one explanation seems to suit all cases.

The end of the reef is the eastern starting point of the breakwater and seawalls of the harbour of Marechiano. From here to the southernmost point of Posilipo stretched an almost uninterrupted series of Roman houses, harbour works, and other remains at so low a level as to completely demonstrate the subsidence of this part of the coast. And it is a matter of surprise that the exploration and description of the region should not have been undertaken long ago, especially when we remember that so great an authority on local antiquities as Maza lived here, and is buried near the north wall of the village church, which he enlarged.

The little village of Marechiano is situated on the top of the cliff, but, as

[a] Ashby, *Campania*, 141, 160.

at Sorrento, many considerable buildings existed under the cliffs on the shore. We may judge of its size by the requirements of the ancient population, indicated as they are by the large water reservoir which exists in a good state of preservation beneath one of the farmhouses and vineyard in the village.

Behind the village is the little rococo church of S. Maria del Faro, the picturesque bell tower of which is a conspicuous landmark (*i*, fig. 7).[a] According to a tradition it occupies the site of the ancient lighthouse from which the local Virgin has taken her name, and the many bits of Roman walls show that it has not been founded upon any new site. There are certain ancient charters which prove that the name of the church is at least as old as the days of King Robert. For instance, we read in one document: "petia una terra sita in villa Posilipi, in loco ubi dicitur S. Maria de Faro."[b] And in another: "S. Stratum seu ad Sanctam Mariam dellu faru, seu ad marum planum."[c]

We have therefore no hesitation in agreeing with Fabio Giordano in his belief that the church was named after an ancient lighthouse:

> Pharus quoque turris, qua accensis noctu lampidibus navigantes itineris admonerentur, in cuius reliquiis sacellum B. Mariæ conditum phari nomen accepit. (Fabio Giordano.)

But we do not consider it proved that, in the first instance, the sites of church and lighthouse were identical or even adjacent. A light placed up on the hill at night might indeed show the mariner where the village was, but it would not be a safe guide when he wished to steer his way between rocks at the entrance of a harbour down below. It is far more probable that the original pharus was situated nearer the entrance to the harbour upon one of the rocks which, though now submerged, was above the surface when the Roman harbour was in use; and when the rocks sank so as to render that position impossible, its place was taken by another structure further inland, and in this way the church of S. Maria del Faro may have come by its name.

On a calm day the limits of the harbour of Marechiano are not easily discernible, for the outer rocks and walls of concrete are submerged, but when the sea is rough a curved line of surf indicates their position. Like a fringing coral reef these harbour defences enclose a pool of tranquil water. On the south and west the enclosure is completed by ancient moles. The east barrier, about

[a] A rough but accurate sketch has been used to illustrate the *Collina di Posilipo*, pl. 26.

[b] Giustiniano, *Regist.* 1317, C. fol. 211.

[c] Chiarito, *Commento sulla constituzione di Federico II.* par. 3, p. 2, pg. 173.

16 feet wide and 55 yards long, has been partly built upon, partly shaped out of the reef of tufa running out from the Cala di Punta Nera. On the other side of the entrance, 38 yards in width and 26 feet at its deepest part, is the west barrier, which starts from a flat rectangular mass, either of rock or of concrete, known as "la Tavola," just off the south-west corner of the House of Pollio.

With the land at the Roman level, the water within the barrier would become very limited both in depth and extent, but there would still have been over a fathom of water at the entrance. Owing to the fact that the harbour defences are continuous instead of being an interrupted *opus pilarum*, as is more usual on the Campanian coast, the harbour has become silted up to a considerable extent.

It is interesting to find that the barrier is of almost exactly the same width as that of the Greek harbour at Modon, as described by Blouet,[a] viz. five metres, but we are not prepared to give any reason for believing that the continuous type of mole construction was more ancient than the interrupted type, of which we have discovered a good example in the harbour of Pausilypon.

At the Roman land level the top of the sea-wall would have been high above the water, like the sea-wall depicted in the fresco shown in fig. 2.[b]

The most important ruins within the harbour (**XX**., Plan 3) are those which are associated with the name of Vedius Pollio,[c] and which are commonly explained as ancient fish stews.[d] Local traditions about Pollio, however, may not be more reliable than those about Virgil, and so the identification of these structures should be received with caution. On the other hand the evidence afforded by adjacent submerged structures tends to show that it is very probable that these so-called fish-ponds, when built, must have been high above the sea-level, and could therefore only have been kept supplied by artificial means. This alternative is so improbable that we cannot but believe that here we are dealing with the lower parts of the walls of an ancient house which originally stood above the sea, but subsequently sank so low that later generations could adapt it for pisciculture. The ground plan is not an uncommon one for a Roman house, and consists of a number of small rooms grouped round a court. The restoration of the plan which has been attempted by Mazois[e] seems to us to have been prepared from

[a] *Expédition scientifique de Morée*, vol. ii. pl. 15, figs. 2 and 3.

[b] Roux aîné, iii. pl. 13.

[c] Wrongly named "Spiriti" in the *Carta topografica* of 1818.

[d] A slab of perforated marble was found here which was believed to be part of the apparatus for fish culture. I have not seen it, and can therefore express no opinion about its date.

[e] *Les Ruines de Pompéi*, Paris, 1838.

erroneous measurements and on the supposition that the house was originally symmetrical, which does not appear to have been the case.

Just behind the House of Pollio at the end of the fishermen's beach is an ancient building (**XIX.**) in a remarkable state of preservation considering its position on the edge of the water. Owing no doubt to the protection afforded by the ruins in front of it, there still remains a circular room with a floor at about 6 feet above the present sea-level, and a rectangular chamber behind. The vaults over both apartments are *in situ* and are used by the fishermen for spreading their nets. The form and arrangement of the rooms is very like that of the two principal rooms of the baths called Tempio di Mercurio at Baia.

Further west the rock has been cut away to form a low platform, upon which foundations are still traceable.

Beneath the village are many signs of ancient work. The flooded cave[a] (**XVIII.**) with two entrances marks the site of a house. Many fragments of masonry lie in the sea below the old retaining wall (**XVII.**), a passage or cave has been cut through a rock near by; and further east at the foot of the old descent leading down from the village to the sea are some remarkable channels cut in the rock. Their secluded waters are now used by laundresses, but they originally belonged to an ancient building of which traces (**XVI.**) are discernible on the neighbouring rocks, and have doubtless served the purpose of fish nurseries in more recent times.

The Casa degli Spiriti[b] (**XXII.**) is the most perfectly preserved Roman house on Posilipo. It stands in front of a *pozzolana* quarry, and being remote from any road is but rarely visited. It is of interest therefore to note that Sir Walter Scott was taken to inspect its ruins on January 26th, 1832, by Sir W. Gell, and we borrow our preliminary description from one of his contemporaries:

> A story existed that out of an opening in the floor of one of the rooms in this villa a spectre robed in white occasionally appeared, whence the place had acquired the name of La Casa degli Spiriti, and none had presumed to inhabit it. The fact was that a third storey had been built upon the Roman ruins, and this being only inhabited by paupers had fallen into decay, so as to endanger one angle of the fabric, and the police, for fear of accident, had ordered that it should remain untenanted. [The house is situated upon a rock projecting into the sea, but attached on one side to the mainland.][c] An

[a] The floor is now submerged to a depth of 5 feet. An illustration is in *Collina di Posilipo*, pl. 27.

[b] *Not* the "Spiriti" of the *Carta topografica*.

[c] The sentence within brackets is not an accurate description.

entrance for a boat has been left in the basement storey, and it is probable that a sort of open court, into which the sea enters at the back of the house, and in which is the staircase, was constructed for the purpose of cooling the apartments in the heat of the summer, by means of the perpetual heaving and sinking of the ocean, which takes place even in the calmest weather. The staircase was too much ruined for Sir Walter to ascend with safety, but he appeared satisfied with what he saw, and took some interest in the proofs which the appearance of the *opus reticulatum*, high up in the external walls, afforded of the antiquity of the place.[a]

We cannot, of course, accept the ingenious explanation for the presence of water in the lower storey, because we have convincing proof of the subsidence

Pozzolana Quarry.

Cave.

Fig. 5. Casa degli Spiriti. (XXII.)

of the building in the fact that ancient plaster, such as is only applied as a covering for dry walls, still adheres to the basement walls below the water. In front of the house and completely submerged is an artificially-formed terrace, with a flight of steps, which must have once been above water.

The accompanying illustration shows that the heads of the doorways and windows were originally semicircular, but in later times repairs and additions

[a] Essay by Mr. M. Hamilton, in *Transactions of the Royal Society of Literature*, 1837.

were executed in rough rubble masonry; on the first floor the large round-headed windows were filled up and others smaller and square-headed were inserted in the old arches.

From these alterations we learn that an attempt was made to render the ancient building serviceable under new conditions. Evidently the first-floor rooms, being very low down, were liable to be swept by heavy seas; the inmates seem therefore to have caused the lower parts of the windows to be blocked up, and to have admitted light through more elevated apertures. Early documents tell that the building was used as a tavern, and was frequented by water parties, and it is very likely that the restoration of the upper portions of the building was undertaken for this purpose.

The water being from 6 feet to 8 feet in depth over the basement floor of this house, the rooms must be visited by boat. In the front facing the sea there are five rooms, of which the middle room (*f*, Plan 3) is a passage leading through the house into a court behind, now open to the sky. These rooms all open on to a lower terrace or "area," which has been cut out of the rock down to the level of the basement; it is also submerged. On the south-west side a small flight of steps or incline leads to an upper terrace (*r*), and perhaps was balanced by a similar flight leading to the terrace on the eastern side of the house, but this has been washed away. Across the middle of the area runs a channel, which may have been a drain.

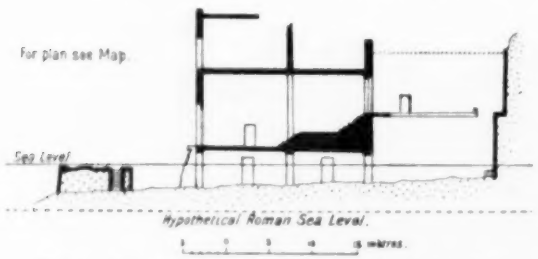


Fig. 6. Casa degli Spiriti (**XXII.**), in sectional elevation.

On the first floor the plan of the basement was followed: a central hall (*f*) and staircase, and, in front, two rooms on either side of it. One room (*i*) was dark and had no window. In the other three (*k*, *l*, *m*) the windows had been altered in the manner already described.

The balcony, which once connected the two rocky terraces (*r*, *s*) and gave access to the central doorway, seems of post-Roman date, to judge by the scanty remnant, but in all probability it replaced a more ancient one. At the western side of the house is a cave, partly hewn in the tufa, partly covered in with masonry. At the back of the building there were apparently three courts (*a*, *b*, *c*), but they are not very easy to make out. They were covered in, during Roman times, the roof being supported by the cliff behind.

The upper storey, like the balcony, is of post-Roman work.

Another chapter in the remarkable history of this house is indicated by the line of erosion which runs all round the house, but which may be most clearly seen on the *opus reticulatum* inside the easternmost room, at a height of 16 feet above sea-level. This shows that the house has been 16 feet *lower* than now.

III.—The Gaiola Region.

From the Casa degli Spiriti to the Cala di Trentaremi there is hardly a square yard, on the cliffs as well as on the shore and under the water, but bears traces of Roman building. Fortunately there are still preserved to us some

Fig. 7. Site of Pausilypon Harbour.
The Roman breakwater lies submerged at k.

a Cala di Gaiola.
b Submerged ruins (XXV.) under Marotta Headland.
c Cala di Lampi.
d Cave.
e House of the Three Buttresses (XXIII.).
f Upper storey of Casa degli Spiriti.
g Malatesta Headland.
h Marotta House.
i Tower of S. Maria del Faro.
k Breakwater (submerged).

buildings which, owing to their massive walls or sheltered position, have escaped the ravages of time and of the unprincipled treasure hunter, who in ruthless searches has satisfied his greed for ancient vases and other antiquities at the expense of the more important buildings which contained them.

In consequence of the slope of the southern part of Posilipo the natural

drainage channels run from north-west to south-east, diverging but slightly from lines parallel to the precipitous cliffs in which the promontory abruptly ends. The land between these south-western cliffs (Cape Coroglio) and the higher ground behind Marechiano is drained by two valleys, the Vallone di Gaiola and the Vallone di Lampi, which taking their sources west and east of the Sans Souci property,[a] reach the sea in two little coves west (*a*) and east (*c*) of the Marotta headland (*b*) (fig. 7).

Fig. 8. The Temple, Gaiola Region.
(*From Collina di Posilipo.*)

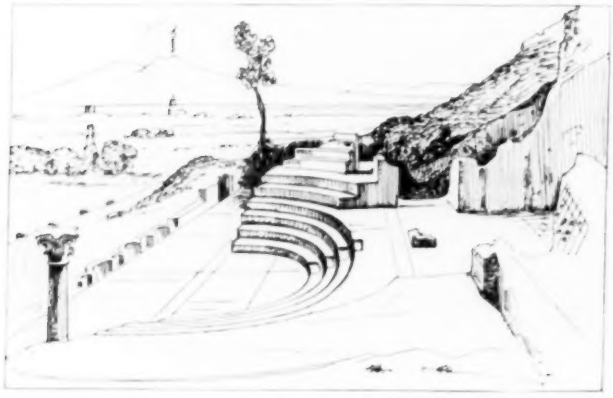


Fig. 9. The Odeon, Gaiola Region.
(*From Collina di Posilipo.*)

It would be foreign to our present purpose to describe in detail the group of sumptuous buildings which crowned the heights overlooking the Cala di Trentaremi, and from which the view of Cape Coroglio, Nisida, Cape Misenum, and Ischia is one of the most charming in all the Campi Phlegræi. We wish merely to lay stress on the fact that the existence of ruins (figs. 8, 9, 10)[b] of a theatre, an odeon, a temple upon these heights as well

[a] Formerly Proprietà Lancellotti, but now in possession of our popular countryman Mr. Walter K. Strickland.

[b] The plans of these buildings, which are shown in Map I. and Plan 6, have been copied from the plate in Fusco and Giampietri, *Giunta al Comento critico-archeologico sul frammento inedito di Fabio Giordano*, 1842, which plate was again published by L. Lancellotti, *Promenade à Mergellina Pausilype*, and reproduced by Wieseler, *Theatergebäude* (Göttingen, 1851), plate ii. fig. 9 A, B. The plan of the semicircular *belvedere* (?) over the cave in Plan 5 is original. Upon its semicircular wall stood pillars like those of the building shown in the fresco representing Dædalus and Icarus. *Cf.* Roux iii, pl. 2. Figs. 8, 9, and 10 have been redrawn from the plates in *Collina di Posilipo*.

as of the noble Grotta di Sejano proves that those who resided at the end of Posilipo were men of no ordinary stamp, and men who would not have been likely to forego any convenience that wealth could provide. A discussion as to whether or no these imposing buildings all formed part of the Pausilypon, the private villa of Vedius Pollio,[a] is unnecessary here, but it is needful for us to bear them in mind when we wish to understand the relation and due proportion of the ancient buildings along the seashore, the remains of which we are about to describe.

Fig. 10. The Theatre. Gaiola Region.
(*From Collina di Posilipo.*)

THE ANCIENT HARBOUR.

Extending in a line parallel to the shore, and distant some 80 yards from it, are structures which the local fishermen from time immemorial have regarded with mixed feelings. For in stormy weather they are natural dangers to be given a wide berth, yet in calm they form a happy hunting ground for *frutti di mare*. Over those nearest to the surface there is less than 1 foot 6 inches of water, but others are 12 feet below.

On closer examination it is easy to see that these "*chiane*" or "shoal rocks" are arranged in a row in line with, and at the further extremity of some submerged ruins nearer the shore, that they are square in section, and that they rise from deep water at nearly equal intervals. They are as obviously artificial as the piers which we have described in the Rosebery Region. But the situation, number, and linear arrangement of the Gaiola piers suggests that they ought rather to be compared with those forming the protective breakwaters, or *opus pilarum*, of the ancient harbours of Puteoli, Misenum, and Nisida.[b]

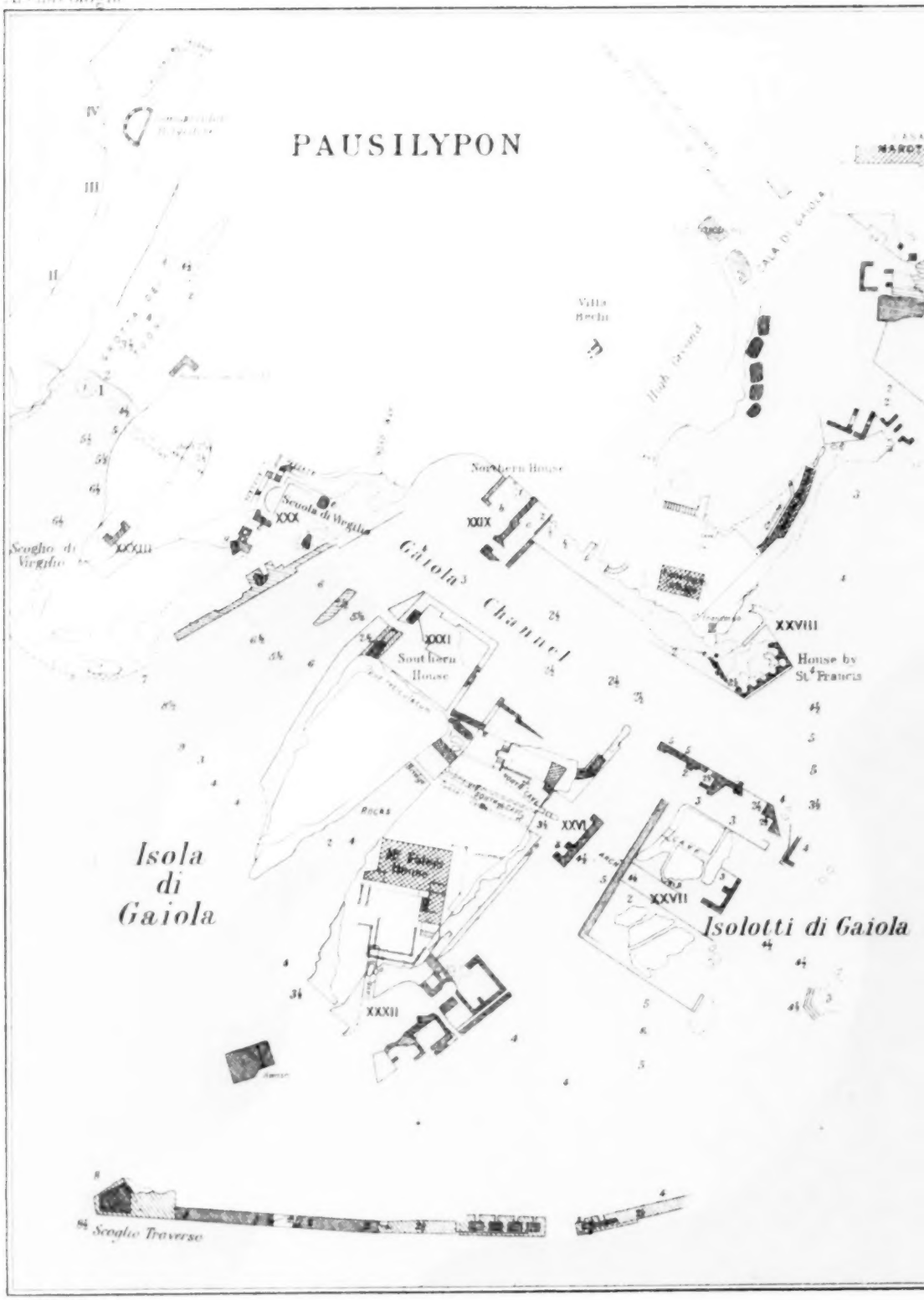
[a] Beloch, *Campanien*, 86.

[b] Mommsen, *Inscr. Neap.* 2491; Jordan, *Archæol. Zeit.* 1868, pl. 11; Rossi, *Bull. Nap.* n. s. i. pl. ix.; Bellori, *Fragmenta vestigia veteris Romæ*; Roux aîné, iii. pl. 21; Fazio, *Intorno al miglior modo di costruire i porti*, and Fazio, *Nuove osservazioni*; Günther, in *Geographical Journal*, 1903, 269-275.

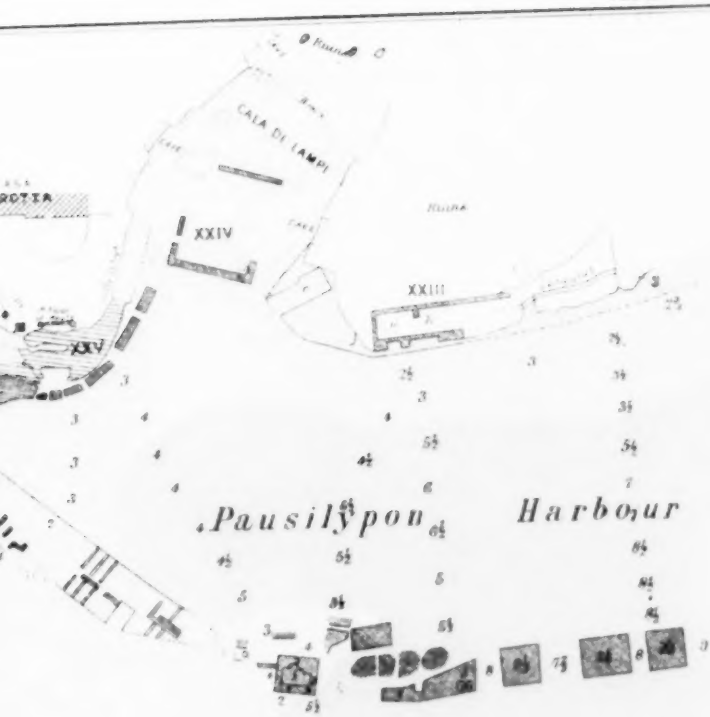
Wherever there seemed to be any danger of an artificial harbour becoming silted up with sand borne along by the littoral drift, the Campanians avoided continuous sea-walls and constructed interrupted barriers formed of separate piers rising from the bottom to the surface of the water. Currents could freely circulate

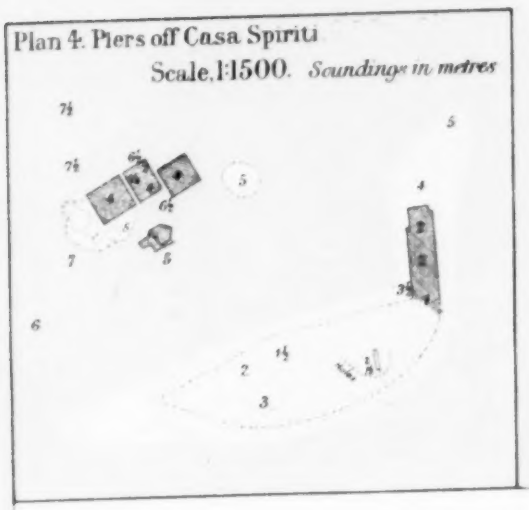
Fig. 11. A Roman Harbour, after a Fresco found at Gragnano.

around the bases of the piers and sweep the passages clear of any deposits of mud or sand which in the course of time might accumulate to such an extent as to choke up a closed harbour.



PART OF A SUBMERGED GREEK AND ROMAN FOR





Plan 5. The Gaiola Region or Palaepolis
Scale 1:1500

Soundings in Metres

C.F.KELL & SON LITH.

N FORESHORE NEAR NAPLES

The Submerged Greek and

The disadvantage of a continuo
shore has been well exemplified in
harbour at Maraval, which becomes
every few years. The Roman plan
water within the outermost piers is
work was spoken of as an *opus pilarum*
nected by arches, forming a *progressu*
Caligula or in the harbour represented

We were not able to distinguish
Fazio found on the piers of the harbo
very likely have been the models of t
relaria of theatres.

It is more than likely that this m
been introduced into Campania by the
and customs. At Delos and at Eleusis
plan.

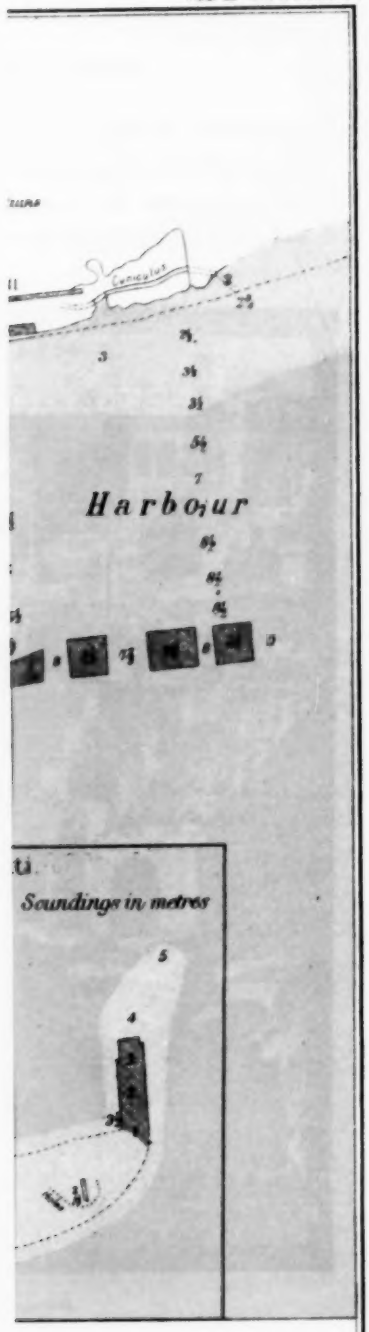
The Pausilypon harbour was well
the piers protected it on the south, and
There are other constructions of a

Opposite the Casa degli Spiriti, a
a shoal is marked upon the admiralty c
to be a group of four piers. The th
height, and rise to within 13 feet from
of a superstructure which rises to with
5 yards square and they are about 1 ya
fragments of masonry, perhaps the de
On the outside of these piers the fourth
of the surface from a depth of 16 or
of Lucretius at Pompeii reproduced
from a group of piers which must have

Further out still is a long crescen
end continues at a depth of 6 feet, a
"fish-tanks" at Marechiaro. The hig
and 5 feet below the surface, has been

[a] Vitruv. v. 12. [b] L

[c] Gunther, *loc. cit.* figs. 12 and 13.



Region or Palaepolis.

1:1500.

Metres

C.F.KELL & SON, LITH

The disadvantage of a continuous sea-wall as a harbour defence on this shore has been well exemplified in the case of the late Mr. George Rendel's harbour at Maraval, which becomes silted up so quickly as to require dredging every few years. The Roman plan has been so efficacious at Gaiola that the water within the outermost piers is still 26 to 30 feet deep. Such a harbour work was spoken of as an *opus pilarum*. The tops of the piers were sometimes connected by arches, forming a *progressus*,[a] as at Puteoli in the case of the Bridge of Caligula or in the harbour represented in a fresco unearthed at Gragnano (fig. 11).[b]

We were not able to distinguish any of those stone mooring rings[c] which Fazio found on the piers of the harbours of Nisida and Puteoli, and which may very likely have been the models of the stone rings to receive the masts of the *velaria* of theatres.

It is more than likely that this method of breakwater construction may have been introduced into Campania by the Greeks, together with so many other arts and customs. At Delos and at Eleusis there are said to be moles built upon this plan.

The Pausilypon harbour was well sheltered by land on the west and north, the piers protected it on the south, and the entrance faced east.

There are other constructions of a similar nature further out to sea. (Plan 4.)

Opposite the Casa degli Spiriti, and some 200 yards distant from the shore, a shoal is marked upon the admiralty charts, which on closer inspection we found to be a group of four piers. The three inner piers are rectangular, 12 feet in height, and rise to within 13 feet from the surface; the middle one bears traces of a superstructure which rises to within 8 feet from the surface. The piers are 5 yards square and they are about 1 yard apart. Some large blocks of stone or fragments of masonry, perhaps the debris of superstructures, lie at their foot. On the outside of these piers the fourth, irregular in shape, rises to within 8 feet of the surface from a depth of 16 or 20 feet. In the fresco from the House of Lucretius at Pompeii reproduced by Niccolini,[d] a woman is shown fishing from a group of piers which must have been like these.

Further out still is a long crescent-shaped rock of which the north-eastern end continues at a depth of 6 feet, as a broad sea-wall, in the direction of the "fish-tanks" at Marechiano. The highest point, near the middle of the shoal, and 5 feet below the surface, has been carved out in a rather peculiar manner

[a] Vitruv. v. 12.

[b] *Le Pitture antiche d'Ercolano*, ii. 295. Also *cf.* iii. 47.

[c] Günther, *loc. cit.* figs. 12 and 15.

[d] *Case ed i Monumenti di Pompei*, pl. iii. 1854-67.

to the resemblance of a tomb 12 feet long, which is girt about seawards by an irregular semicircle of round holes placed about 2 feet apart. The only explanation to be offered concerning them is that we have here the foundation of a superstructure, long since washed away. It is possible that an ancient lighthouse to show the entrance to the Pausilypon or Marechiano harbours once stood upon this shoal, then a rock well above water, just as the Lanterna marked the entrance to the Julian harbour, and it is also possible that this was the light-house from which the village church of Marechiano takes its name.

Along the shore inside the harbour stood several Roman buildings, of which traces are still to be seen on the cliffs and under the water.

On the point to the east of Cala di Lampi was a large house (Plan 5, **XXIII.**), of which the greater part of the ruins are some 15 feet above the present sea-level. It therefore probably stood about 30 feet above the Roman sea-level. The front of the house was supported by three buttresses against the rock, which are a conspicuous feature as seen from the sea. A winding passage, 6 feet high by 2 feet broad, and dipping from west to east, is tunnelled in the rock under the house. The bottom of the passage is 3 feet above the water at the eastern end of the house where it opens near the sea. The middle portion, with the rock in which it was tunnelled, has been washed away. The tunnel continues to the east, taking a downward course, and where we find it complete again, it is half submerged. The eastern termination nearer the Casa degli Spiriti is now entirely covered at high water, and is about 7 yards from the present shore.

The purpose of this *cuniculus* was a great puzzle to us at first. Originally it must have been well above the water-level, for it could not otherwise have been hewn through the rock, and it therefore affords another convincing proof of subsidence of the land. It seems unlikely that so large a tunnel or one apparently involving such unnecessary labour of construction would have been made for a drain. We believe it to have been intended as a private entrance to the house from the sea. Similar tunnels occur beneath many foundation sites (cf. p. 13).

A rectangular excavation has been cut in the submerged ledge of rock below the western end of the house (Plan 5, *c*).

Around the little beach of the Cala di Lampi there are several ruins of ancient buildings, but of greater importance for our present purpose are the submerged walls which stretch across the cove itself (at *c* in fig. 7), and indicate that the cove as we know it did not exist in Roman times, but that the bottom was dry, and that a house (**XXIV.**) stood there facing the old harbour. In the low cliffs to the east

and west of this house are two small partly submerged artificial caves (*d*, fig. 7), (Plan 5, C′, C″), of about 10 feet in height, which belonged to it. It is interesting to note that several of these Roman seaside houses were provided with artificial caves. A cave partly hewn out of the rock formed an annexe to the Casa degli Spiriti; and the house of Servilius Vatia, though probably on a much larger scale, was provided with two caves which were sufficiently noteworthy to be mentioned by Seneca.[a]

The Roman House of Marotta (**XXV.**) stood against the cliff at the end of the headland, at a lower level than the modern house (*h*, fig. 7), but all has fallen away except the northern margin of the chopped-tile floor of a first-floor room, which is partly imbedded in hard grey tufa, 10 feet above the water. The lower surface of the bed of the grey tufa, which attains to a thickness of 6 yards at this point, is raised about a fathom from the sea by the dense yellow tufa of Posilipo. Several large fragments of masonry lie in the sea below (*b*), as well as the foundations of the building, which probably stood at the head of the harbour.

Partly buried in the sandy beach of the Cala di Gaiola are the massive arched substructions, which we are inclined to associate with the road from the Grotta di Sejano.

THE GAIOLA ISLANDS.

We have now arrived at that part of the coast which has always had the greatest fascination for us, namely, the Gaiola islets and waterways. (Plan 5.)

The spot is one of classical association and great charm. There is hardly a rock but bears the mark of the Roman mason, and could only the sea-bottom be raised, many of its problems would be easily solved. At the present time, however, the superficial observer will note little except a few much weather-worn rocks which tell how thoroughly the forces of denudation have accomplished their work. Upon the larger of the two rock islands an Englishman has made his dwelling between the walls raised by a Piscicultural Association[b] which became insolvent. Since coming into possession Mr. Nelson Foley has thrown out piers to protect his landing-place in stormy weather, and has made other improvements which unfortunately sometimes conceal the ancient remains. Early in the nineteenth century

[a] Seneca, Ep. 55.6.

[b] Società della Pescicoltura del Regno d'Italia nel mar di Posilipo.

the two Gaiola islands were joined by a rocky arch (fig. 12),[a] which we believe to have been the roof of a large artificial cave or tunnel, like the tunnels cut

Fig. 12. Gaiola Island as it appeared early in the nineteenth century.

through the rocks of Badessa, and of the Lazzaretto di Nisida, and the one through a small rock at Torregaveta, frequently pointed out as an ancient bath.

The arch has now fallen in, and the islands are divided by a channel partly blocked by the debris. In the island which lies to the east of the channel are two partly submerged caves facing eastward; a wall stretches along the sea-bottom in front of their mouths and separates them from a deeper channel. Just within the entrance the two caves communicate by a narrow way cut through the rock.

From the southernmost cave[b] a submerged tunnel, 6 feet high, passes into the large cave (now channel) between the two islands. The floor of the cave is submerged to a depth of 6 feet, and the top of the tunnel is 1 foot 6 inches under water. Its walls show patches of plaster, its roof is rounded. At 6 feet below the surface of the water, a ledge or seat rather less than a yard wide runs along either side, at the west end these ledges rise by three steps to a platform about 4 feet under water. In the north wall is a niche 3 feet long by 8 inches deep. In the west wall is the tunnel already mentioned. (Plan 5.)

The northern cave, having been less eroded than the southern, retains more of the original plaster coating on the walls. We observed that here, as elsewhere on this coast, little or no erosion has taken place below the reach of the waves.

THE ISOLOTTI DI GAIOLA.

To the east of the larger islands are two weather-beaten rocks, the Isolotti di Gaiola. Except for the fact that the northernmost is traversed by an artificial

[a] The drawing has been made from an early water-colour sketch in the author's possession. The mountain shown in the distance to the left is Monte Solaro, in Capri. *Cf.* St. Non, *Voyage*, ii. pl. 63. A photograph of the Gaiola in its present state appeared in *The Traveller* for 13th July, 1901.

[b] The southern cave measures 65 feet long by 29 feet wide by 16 feet high.

cave,[a] still retaining traces of plaster, with a passage 4 feet deep by 3 feet broad leading south, these rocks do not show any trace of artificial work above water. Below the surface, however, the well preserved walls indicate that here was a rectangular building or buildings which in our opinion stood on the east side of a road which ran north and south.

The picture which comes nearest to our idea of what the Isolotti may have looked like before the buildings upon them were destroyed is shown in fig. 14.[b]

About 50 yards east of the Isolotti there is a shoal rock, just over a fathom deep, which at its south-west corner has been shaped to an obtuse angle. It appears to have been connected by dry land with the Isolotti, but it may also have stood out in the sea like the foundation of the building depicted in the fresco of Daedalus and Icarus in the British Museum.[c] Like it, the upper part of the foundation rose in steps.

THE GAIOLA CHANNEL.

The eastern entrance of the Gaiola Channel is marked by the modern wooden effigy of the fisherman's patron, St. Francis, which stands there watching a tiny basket at the end of a rod, into which those who have made a good catch place a small offering in kind as a mark of their gratitude to the saint who has smiled on their fishing. Such effigies are rare; indeed we are not acquainted with any other upon this coast, and we are tempted to see in this St. Francis a survival of the statue of Hercules (*cf.* fig. 2)[d] or of some sea-god, perhaps of Glaucus, Palemon, or of Neptune himself, who had a temple here. For the sake of comparison, we have reproduced a photograph of St. Francis looking at the sunken Isolotti (fig. 13), and a fresco of a sea-god near a square group of buildings such as may have crowned the Isolotti in Roman times (fig. 14). Our St. Francis may even be the Portunus still faithful to his sunken harbour of Pausilypon.

A remarkable ruin lies in the sea below St. Francis. The interior was built so as to form six semicircular niches, each measuring 6 feet in diameter, which appear once to have been vaulted over. One of the niches was fashioned in the short north-east wall turned towards Pausilypon harbour; five are ranged along

[a] 6 feet broad by 6 feet deep by 4 feet high.

[b] From *Le Pitture antiche d'Ercolano*, v. 104.

[c] *Arch. Zeit.* pl. 2, fig. 1.

[d] In Statius *Sylv.* iii. 1.68, there is a mention of a statue of Hercules by the harbour of Sorrento.

the south-east side of the fabric, which is 49 feet long. The southern angle is obtuse, so that the southern side lay parallel to the line of the channel and to the submerged walls opposite.

The plan of the building resembles that of the small temple near the theatre on Coroglio (fig. 8).

Capri.

Fig. 13. Statue of S. Francesco, facing the Isolotti di Gaiola, the site of ancient buildings (XXVII.).

There is a small vertical hole in the wall just outside the southernmost niche which goes at least as deep as the sea bottom (13 feet), and a horizontal channel

Fig. 14. Statue of a seaside Divinity, near a group of buildings of rectangular ground plan similar to that of the buildings which formerly stood on the Isolotti di Gaiola.

or passage of some 6 feet deep has been cut in the rock behind the fabric, 42 feet from the south-east face.

A similar horizontal cut in the rock, 60 feet long, may be seen behind the new sea-wall constructed by Mr. Foley to protect the anchorage of his launch.

The top of the walls are so near the surface as to be awash whenever there is a slight sea on; they rise up from a depth of 2 fathoms.

To the west of the House by St. Francis the submerged rocks skirting the shore have been artificially hewn straight. They rise from the bottom of the channel (8 feet) to within 2 or 3 feet of the surface. Beyond some steps and a slip-way in present use, the rocks become high, and show by their artificially cut ridges and flat surfaces that a building once stood against them in the channel.

The southern part of the ground plan of the Northern House of the Gaiola

Fig. 15. Northern House, Gaiola Channel (**XXIX.**).

channel (**XXIX.**) may be seen under 6 to 10 feet of water, and it is possible to make out the position of the entrances to two rooms (*b* and *c*, fig. 15); one

Fig. 16. Scuola di Virgilio (**XXX.**).

a Fluted pilasters. *b* Mosaic floor. *c*, *d*, *e* Ruins of Scuola. *f* Cliff above Grotta dei Tuoni. *g* Masonry shown to left of fig. 17. *r* Scoglio di Virgilio.

measuring 26 feet by 29 feet. Some ruins of the first floor rooms and a passage (*a*) are *in situ* on the rock above.

Nestling under the low cliffs at the western end of the channel are the most extensive of the remains of the Gaiola Region now to be seen above water (**XXX.**). Illustrations of these have frequently been published, but the best are in Paoli,[a] and have often been copied by his imitators. Tradition associates the name of Virgil with the ruins, and tells us that here was his school, hence the name Scuola di Virgilio, by which the group is known; but the early antiquaries, who saw in every partly submerged Roman building a Roman bath, labelled this group with the common name. Knowing, as we do now, that it must

Statue of St. Francis. b a Gaiola Island.

Scuola di Virgilio (**XXX.**) (*g*).

Fig. 17. Gaiola Channel, looking east.

have stood some 15 feet above the sea-level, we can perhaps get nearer to the truth, if, judging from the position which gave it a view to the east down the channel between the other buildings, we suggest that it was either a *belvedere* or a temple. The building consisted of a square chamber, with a semicircular apse in the western side; a low and narrow passage led between the central chamber and the rock; the floor is surrounded by a channel. The eastern edge of the partially submerged ledge of rock on which the Scuola stands has been trimmed straight, and rises from 3 to 4 fathoms of water, and there are several vestiges of walls upon it. A bridge resting upon the wall in the middle of the channel may have given access to the building we have named the Southern House of the Channel (**XXXI.**).

[a] Paoli, *Antiquitatum Puteolis Cumis Baiis existentium reliquiæ*, 1768. D'Ancora, *Guida ragionata*, 1792.

Just off the Isolotti di Gaiola, and opposite to St. Francis, the top of a wall of concrete appears above the water (fig. 17, *a*). Below the surface, and rising from 16 feet, are structures in a straight line, which we believe to have belonged to the northern walls of buildings on the Northern Isolotto, perhaps of **XXVII**.

At the north-east corner of the larger island, the little modern sea-wall rests upon an ancient foundation, lying north and south.

Traces of other foundations occur in the shallow water of the channel, further west. The largest is that of the Southern House of the channel (fig. 17, *b*, and Plan 5, **XXXI**.), which stood opposite the Northern House, and seems to have had an entrance from the west, where steps may possibly have led down to the water.

SOUTH END OF ISLANDS.

At the south-east corner of the island there was a house of five or six rooms on the ground floor, ending to the south in a strong angular buttress, which may have served as foundation to an upper storey (**XXXII**.). Near by an artificial cave, at least 12 feet long, had been hollowed in the rock of the island, but unfortunately the greater part of the roof fell in during a storm in 1899. The building was approached by a pathway that led between the Isolotti and the island. At about 25 yards to the west of the house there is a rectangular pier awash, off which the soundings deepen to 4 fathoms, so that the pier must have been just beyond the ancient shore, and may have supported a little temple or pavilion in the sea.

The situation of the buildings of the Gaiola promontory was one more than usually exposed to the onslaught of the waves, and we must perforce inquire how these Romans protected their seaside villas, seaside in the most literal sense of the word. A few more soundings made not 50 yards from the buildings reveal the secret. To the south-west, a rock or mass of concrete, the Scoglio Traverso of the Italian charts, rises to the surface, and from it starts a wall which runs eastward, at a depth of from 6 to 10 feet, and, after coming once more to the surface, continues for a considerable distance.

With the land at a higher level this structure would have been a sea-wall, and we believe the area it sheltered to have been principally dry land.[a]

[a] The condition of things must have closely resembled the fresco depicted in Roux siné, iii. pl. 28.

Still further to the south-east additional protection was afforded by a shoal now 16 feet under water which extends for about 270 yards. We find upon it many rocks presenting in their straight-cut edges traces of the handiwork of man; beyond this, and about a quarter of a mile from the island, is the Cavallara Shoal of which the rocks though at the same depth as those of the former shoal, and therefore in Roman times level with, if not well above the surface, have no apparent traces of having been quarried or built upon.

Our survey notes of these further shoals have unfortunately been rendered useless by the fact that the officers of the port had shifted the gas-buoy from the moorings as marked in the charts. In Maps 1 and 2 we have therefore reproduced the five-metre contour line as given in the Italian chart.

Our reasons for believing that in these submerged ruins of the Gaiola Region we have the remains of Roman buildings which were erected upon the site of the Greek Parthenope or Palaepolis, have already been stated in the introductory paragraph.

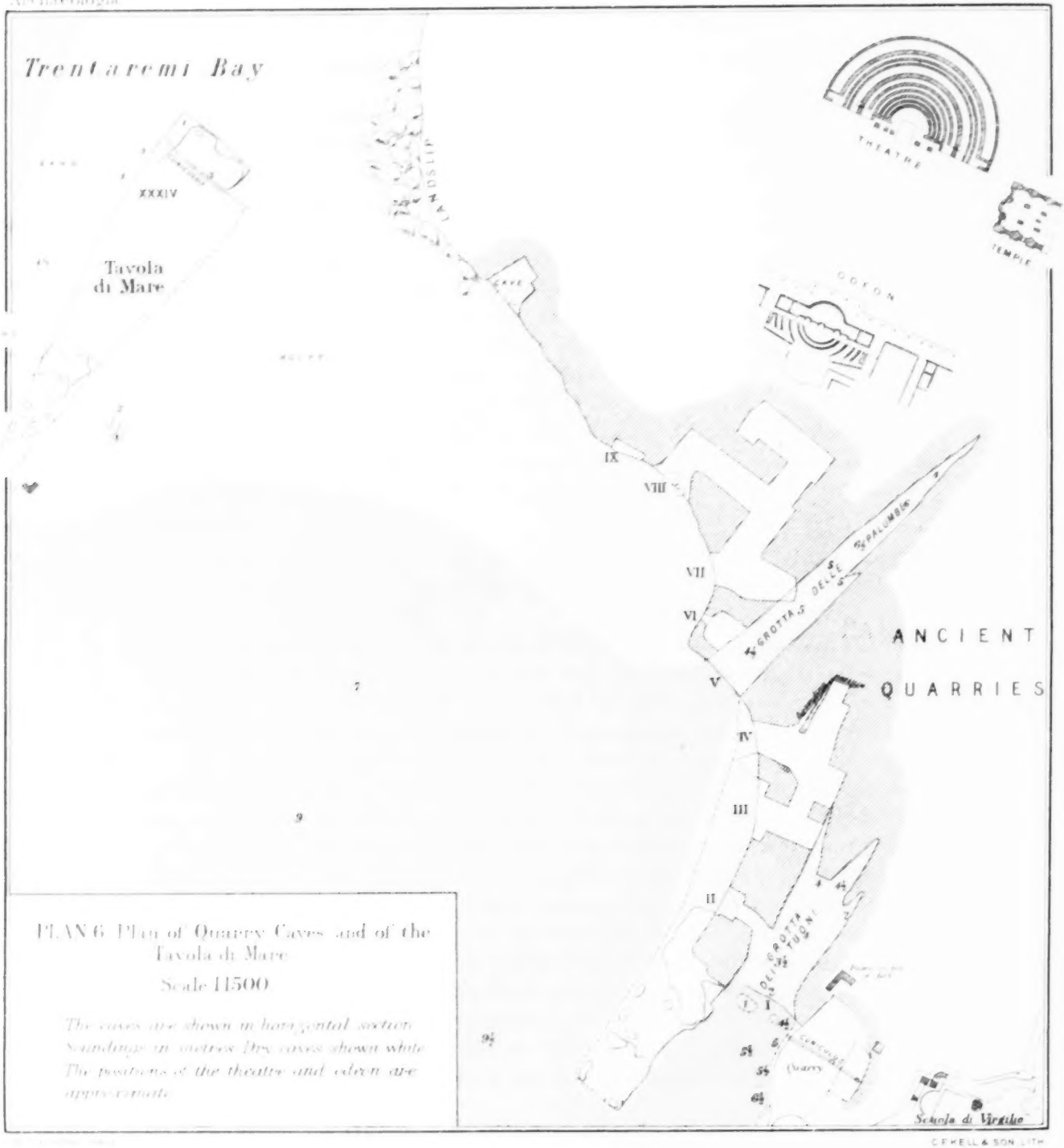
SCOGLIO DI VIRGILIO.

The pointed headland, the Scoglio di Virgilio (*v.* fig. 16), between the Gaiola and the Cala di Trentaremi, is so like the beak of a trireme that it is frequently assumed to explain the name of the bay, and has given rise to a tradition which ascribes its fantastic shape to the magic of the supposed necromancer Virgil.[a]

On the top of the Scoglio di Virgilio there are many fragments of walls (**XXXIII.**) and marble pavements and the lower portions of two plastered fluted pilasters (near *a*, fig. 16), the remains of a building which stood in a position of incomparable beauty, and which may once have been connected with the "Scuola" beneath. Some idea of the ornate character of the building is afforded by a fragment of a terra-cotta tile, 1 inch thick, perhaps a portion of a frieze, and ornamented with a flowing honeysuckle ornament crossing a fillet in fairly high relief, which was found here and is now in the possession of the author; and also by the stucco on one of the walls which still showed a wheat-ear pattern painted in green and cream upon a black ground.

Behind the House of the Scoglio di Virgilio is a semicircular excavation quarried in the tufa which would not call for especial remark were it not for the

[a] The story about Virgil and the Posilipo tunnel has been reproduced by Leland in his collection of *The Unpublished Legends of Virgil*, 1899.



PLAN 6. Plan of Quarry Caves and of the Tavola di Mare

Scale 1:1500

The caves are shown in horizontal section. Soundings in metres. Dry caves shown white. The positions of the theatre and odeon are approximate.

PART OF A SUBMERGED GREEK AND ROMAN FORESHORE NEAR NAPLES

fact that in its floor, the height of which varies from about 2 feet to 6 feet above the water-level, we found a circular shaft a yard in diameter, plastered internally with smooth hard cement, with water at the bottom. Further examination showed that the sea enters the bottom of the shaft by a horizontal passage or *cuniculus*, 6 feet high, cut through the rock, entirely filled with water, and we could only discover its extremity with difficulty at about 15 feet below the surface of the water, 52 feet from the shaft and 16 feet from the rock-face east of the Grotta dei Tuoni.[a] It seemed to us that the *cuniculus* was also continued in an easterly direction and possibly as far as the Scuola, 25 yards distant on the other side of the headland.

On the higher bluffs which overlook this is the noble group of buildings of the so-called Villa of Vedius Pollio, or "Pausilypon."

CALA DI TRENTAREMI.

At the Cala di Trentaremi is a bay which has probably been much enlarged by the digging of *pozzolana*, now much used, as it was in Roman times, for making mortar. East and north the Cala is surrounded by the precipitous cliffs which, rising as they extend westward, eventually culminate in Cape Coroglio.[b] The western side is formed by a long narrow promontory of irregularly bedded tufa, the "Cavallo," at present used as a quay, alongside which the *pozzolana*-boats lie while receiving their cargoes. The bottom of the bay is mostly sandy and from a depth of 3 fathoms shoals gradually to the beach.

In the middle of Trentaremi Bay a long rocky reef just peeps above the water, with a flat surface, which well merits the name of "la tavola di mare." On the rocks we have discovered traces of ancient work, testifying to the former existence of buildings upon them (**XXXIV.**). The northern end of the Tavola rises straight from the bottom in the manner of the square-cut foundations of sea-side buildings, and it is traversed from side to side by one of those remarkable submerged *cuniculi*, to which we have so often directed the reader's attention: and here too the characteristic bending of the passage is not wanting. (Plan 6.)

Other artificial work lies beneath 6 feet of water near the south end of the Tavola on the eastern side.

[a] For a photograph of the Scoglio di Virgilio and of the Grotta dei Tuoni showing this excavation, see Gunther, *The Phlegraean Fields*, p. 19; *Geographical Journal*, October, 1897.

[b] "Corogno" in some maps.

THE ANCIENT QUARRIES.

Under the high cliffs on the eastern side of the bay are many vast caverns frequently visited by pleasure parties. The Grotte dei Tuoni and delle Palumbe can be entered by boat for a considerable distance; the others are mostly raised above the water. That some of them are artificial is obvious, but a careful examination of those with less regular contours has convinced us that they also owe their origin to the hand of man: their hewers and their purpose have been alike forgotten.* We believe them to have been the stone quarries from which the Roman builders of the many edifices along the neighbouring parts of the shore obtained their building material, and no doubt the earlier Greek masons drew their stone from the same cliffs. Some bear indications of having been worked in more recent times, and have their floors but a few inches above the water. There are others and deeper ones which have been artificially cut 13 feet, 16 feet, and even 19·5 feet below the present surface of the water; those we believe to have been dry during the Roman period, and to have become submerged at a later date.

I. The floor of the Grotta dei Tuoni is 14 feet below the surface. The entrance is towards the south, and the main branch of the cave extends northwards for 60 yards at least. To the left of the entrance it opens into the shallow Cave II. under an arch 6 feet high, and further in, a channel, wide enough for a boat to pass, leads behind Cave III. A submarine passage, 17 feet deep, leads under this channel, and extends for some distance in the rock beneath the back wall of Cave III.

II. A very high but shallow excavation 24 feet wide with a low aperture at the back communicating with Cave I. The entrance faces west. (Plan 6.)

III. and IV. Both these lofty entrances lead into the same vast hall about 46 feet high by 24½ feet broad, extending north and south for 99 feet.

At the back is the channel communicating with Cave I. From near entrance IV. a narrow ascending passage has been hewn in the rock, which eventually reaches the vineyard above; but partly owing to portions of it being blocked with stone and partly to others having fallen, it is not easy to make the ascent.

Entrances II., III., IV. all open to the west over a flat shelf of rock 20 to 25 feet broad, which extends along the base of the cliff at a few inches below the

* Our reasons for regarding these caves as of artificial rather than of natural origin have been stated in the *Geographical Journal* for August, 1903.

surface of the water. Beyond the shelf the water suddenly deepens to over 4 fathoms.

V. This entrance gives access to a second deep and long cave which, as the floor is under water, can only be entered by boat. It may be identified as the Grotta delle Palumbe or Grotta di Silla[a] of the maps. It is about 65 yards long and opens to the south. At the entrance the water is about 13 feet to 14 feet deep, but further in the soundings increase to 16 feet and even to 21 feet, showing

Fig. 18. Tufa Quarries, Trentaremi Bay.

that the floor at the entrance has been raised by debris which have accumulated there, having probably fallen from the cliff above. As in Cave I., just within the entrance an aperture leads into the next cave, and still further in, a tiny hole in the roof communicates with Cave VII.

VI. A small rectangular opening in the face of the rock by the side of VII. which leads into Cave V. by an aperture 6 feet high by 5 feet wide.

VII. An opening 23 feet wide leads into a cave of rather irregular shape which is about 43 yards long and 39 feet high. At the back it has been excavated so as just to touch Cave V. at the small hole. One western branch opens at entrance VIII. and a second, 54 feet long by 30 feet broad, has been worked in the rock behind.

[a] In the *Carte du Golfe de Pouzzoles* "levée sur les lieux et dessinée par Mrs. de la Vega ingénieurs du Roi de Naples à Portici, 1778," No. 96 in Saint Non's *Voyage*, the Grotta di Silla is marked on the *west* of the Cavallo.

VIII. Is a round-arched entrance about 16 feet high and 31 feet broad. The bottom is much choked with large boulders which have fallen from the cliff above. On the east side of this cave a passage with a floor 1 foot 8 inches above the water-level leads into the large Cave VII.

IX. A lofty excavation which has evidently only just been begun.

Further north-west are the remains of some two or three low caves of no great depth; beyond these a landslip has completely obliterated all traces of ancient work.

Except in those places where the face of the cliffs has fallen away, there is a very clearly cut groove of erosion along the cliffs at a height of 20 to 24 feet above the sea. The surface of the rock below this groove is smooth and not much weathered, and generally presents the appearance of having been cut with tools. Above the groove the surface has the honeycombed appearance which we associate with atmospheric erosion or with erosion by wind-driven spray.

The inference to be drawn is that the original cliff face, whether cleft smooth and vertical by natural rock-falls or cut by man's hand, was hollowed out to form the caves during the Roman period or earlier, that subsequently a relatively rapid submergence took place, and that then the land remained stationary at a low level for a period long enough for the groove of erosion to be cut upon the cliffs. And whereas the surface of the cliffs above the groove has always been exposed to the action of the atmosphere, the lower part of the cliffs has been protected by immersion and hardened.

Between the Punta di Cavallo and the Bagnoli strand there are several traces of ancient work. There are more quarry caves (*e.g.* Grotta de' Bovi) under the cliffs; artificial passages have been driven through the islet rock of La Badessa and the Agnone headland, and several worked rocks may be seen under water. But our courage failed for a closer examination, for the newly-constructed sewer, the Scaricatoio di Coroglio, was polluting the sea with the sewage of Naples, and forced us to retreat, regretting that we could smell further than we could see.

The Evidence for the Former Existence of an Ancient Coast Road from Mergellina to the Capo di Posilipo.

The spectator who stands on the hill of Pizzofalcone and looks down upon the west end of the city of Naples will see it spread out in a panorama before

him, at first broad as it rises from the sea up the hill of the Vomero, which forms, as it were, the auditorium of an amphitheatre; then, where the hill bending joins the promontory of Posilipo, the town gradually decreases in breadth till it thins down to a long white line which stretches along the lower part of the promontory where land and water meet (*b*, *b*, fig. 19).

Rising from this first line of houses, immediately on the water's edge, is

Fig. 19. Posilipo as seen from Naples.
a, *a* Line of new houses along the Strada Nuova.
b, *b* Line of houses along the Course of the old Coast Road.

a second and newer line along a road (*a*, *a*, fig. 19), the fine Strada Nuova di Posilipo, which at the present time is the chief means of communication between the villas of Posilipo and Naples. It rises with a carefully engineered gradient from Mergellina, reaching its highest point in a cutting 150 feet below the crest of Coroglio. From this point a steeper but regular descent leads to the plain of Bagnoli on the other side of the ridge.

The road was one of those commenced during the occupation of Naples by the French. By their enterprise the old Via di Mergellina was extended (1808-1815). In 1816 the engineer corps of the Austrian army, which had assisted in the expulsion of Murat and in the Restoration of the Bourbons, continued the work; further

portions were completed during the reign of Ferdinand I., but the road is said not to have been definitely finished until 1830-1857.

Although the improved means of communication afforded by this road has caused a great impetus in house building in recent times, yet even in the days of the Romans and in the middle ages the agreeable situation of Posilipo made it a very popular suburb.

In ancient charters we find mentioned by name no less than five separate villages: Marechiano, Magalia, Santo Strato, Spollano, and Ancari.[a] At the present day the number is the same, for Villanova and Porta di Posilipo have taken the place of Magalia and Spollano, but the identification is uncertain. Most of these were upon the upper part of the ridge of Posilipo. Near the sea there still remain many houses dating from Spanish times, and also ruined foundations of Roman villas, which are especially numerous along the shore. These being far older than the New Road, the question arises as to what means of communication existed between them and Naples before the advent of the French engineers.

Before the nineteenth century the only cart road was the old Strada sulla Collina. Starting from the Vomero, it placed the houses and villages near the crest of the ridge in communication with one another, and it ended near the Torre Ranieri and Santo Strato. Numerous donkey tracks and flights of steps led from this main road to houses nearer the sea. There seems to have been no proper way of going by land from any of the more distant villas on the coast of Posilipo to the town except by ascending some one of these narrow donkey tracks as far as the top of the ridge, and of then proceeding along the Strada della Collina. A striking exemplification of this circuitous route occurred in the winter of 1888-89, when a landslip[b] blocked the Strada Nuova, near Palazzo Donn' Anna, and all the land traffic and foot passengers from the further side were put to the inconvenience of going to Naples by the upper road.

The inconvenience of such a route would naturally tend to make the sea the chief means of access to these waterside dwellings, but it would be one liable to frequent interruptions in unsettled weather, and without better means of communication the seashore of Posilipo is not one along which we should have expected to find isolated private residences either now or in Roman times.

It is the object of this part of our paper to collect such accumulative evidence as shall amount to a proof of our thesis: that a road connecting the Capo di

[a] Charter of Robert—(*Regest.* 1332. B. fol. 75.) Also charters of 25 May, 1333, and of 6 May, 1398, quoted in *Collina di Posilipo.*

[b] 31st December, 1888, at 12.15 a.m.

Posilipo with Mergellina formerly existed along the margin of the sea at a time when the land stood higher from the water than at present, and that the houses now fringing the coast mark the site of houses formerly existing along this road.

To support this contention we may adduce an old panoramic view of 1710, painted a century before the Strada Nuova had opened the way for traffic along the lower parts of the hill. In an explanatory paragraph to this view, Niccolini[a] states that only two out of nine houses identified by name along the coast were then used as private residences, the other seven being taverns and restaurants for the diversion of water parties, which seem to have been very popular in those days. Most of these places of entertainment have now become private villas.

Further, we would attach significance to the fact that many of the older houses near the sea have been constructed without any proper entrance on the land side. The original principal entrance is on the side to the sea, and access to the new road above has been obtained by the formation of a secondary entrance, sometimes on the first floor and sometimes even on the roof of the house.

In fact all those buildings along the water's edge, which were built anterior to the new road (1812), have the appearance and structure of having been erected along a road skirting the sea.

As it is now quite impossible to trace the supposed road along the entire length of the Posilipo shore, we shall content ourselves with enumerating such indications of it as we have observed, and with stating that we have assured ourselves that no physical obstacle to the road exists in the gaps, always assuming that a subsidence of land of at least 10 feet has occurred since the construction of the road.

The evidence that the land of Posilipo is now at a lower level than formerly is conclusive, for there are several Roman ruins at a much lower level now than when the buildings were constructed. For example, we may mention rooms with floors awash or beneath the surface, plaster adhering to submerged walls and passages excavated in rock which are now entirely below water.

Before proceeding to the details of the evidence and in order to trace the course of the supposed road now under the water, some slight description of the natural features of Posilipo will not be out of place. Except at the end of the hill nearest to Naples, where the natural contours have been much disguised by buildings, the structure may be easily perceived.

The tufa slopes of Posilipo are seamed, like a well-drained field, with ridges and furrows that run at right angles to the long axis of the ridge which extends

[a] This picture sometimes occurs as an appendix to Niccolini, *Fenomeni di Serapeo.*

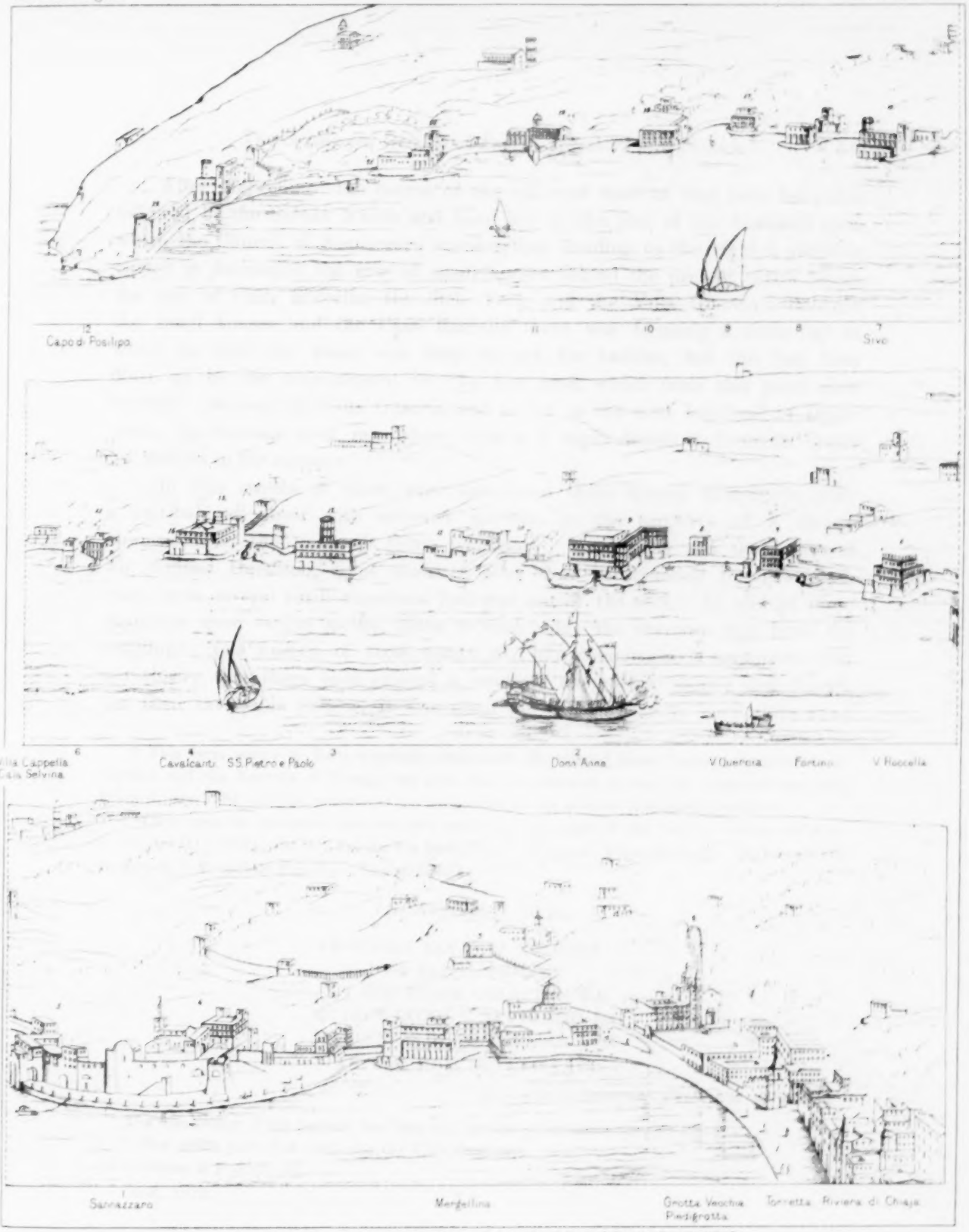
from north-east to south-west. The coast line is undulating; little coves, with landing-places termed "*cale*," alternate with diminutive headlands, corresponding respectively to the furrows and ridges of the slopes. The detritus from the cliffs forms sandy beaches in the coves, and all sheltered spots, such as artificial harbours, tend to become rapidly silted up with sand drifted along the shore from the south. At no place near the shore is the water very deep, and the three-metre-line of soundings is sufficiently remote from the base of the cliffs to permit our conjecture of the possibility of a road if the land were raised a little above its present level. A rise of only 6 feet would make it possible to walk dryshod along the shore from the town to the Capo di Posilipo.

The oldest delineation of the coast of Posilipo that we know of, which has any pretentions to accuracy of detail, is the oil painting of 1710, referred to above, formerly in the possession of the Reale Istituto di Belle Arti in Naples. An outline sketch of this painting shows very clearly the position of the houses on the sinuous coast line, and has been engraved as an illustration to a book of Niccolini (Plate XLIX.)

After carefully comparing the engraving with the Posilipo coast as it is in the present day, we come to the conclusion that except for the omission of a small headland belonging to the Roccaromana property, and except for some trifling details, the picture is a nearly correct representation: Niccolini, however, was either not quite accurate in his identification of all the houses, or else the rocks of SS. Pietro e Paolo have been wrongly placed; but for the sake of facilitating comparisons, we have reprinted his names in an appendix.

DESCRIPTION OF COURSE OF ROAD FROM THE RIVIERA DI CHIAJA TO THE CAPO DI POSILIPO.

The sea front of the west end of Naples has been so altered that it is not easy to recall its original condition before the Via Caracciolo, one of the finest promenades in Europe, and the gardens of the Villa Reale arose from a sandy shore. In old drawings of the beginning of the nineteenth century, we see that the fishermen drew up their boats and spread their nets on a sandy beach which extended uninterruptedly from the low tufa cliffs of the Castello dell' Ovo to the foreshore of Mergellina. At that time the sea came to within a few feet of the houses on the north side of Mergellina. It has now been pushed back far enough to allow of the building of an entirely new quarter of the town.



PANORAMIC VIEW OF THE COAST OF POSILIPO IN 1710.

The small numbers on the picture refer to the houses named in Niccolini's treatise.

Published by the Society of Antiquaries of London 1903

After Mergellina[a] the course of the old road must at first have been that followed by the Strada Nuova and have lain at the foot of the headland upon which the Church of Sannazzaro stands; then bending to the right it probably passed in succession the row of small houses behind the present octroi house, the site of Casa Roccella, the little Fort, and the Villa Guercia. Between the small houses and the Casa Roccella there was formerly a little bay in which in 1800 the water was deep enough for bathers, but this has been filled up by the embankment for the new road, which from this point rises steadily. Beyond the Villa Guercia, and as far as the next headland of Donn' Anna, the ancient road ran where now is a sandy beach, a favourite resort for bathers in the summer.

On this stretch of shore were discovered three Roman columbaria, with a vestibule all lined with coloured marbles, on the property of a Cesare Brancaccia in the time of Fabio Giordano. Near what was the house of Sir William Hamilton,[b] some workmen who were constructing the new road, came upon several small chambers hollowed out of the rock. In each of these chambers were twelve niches, three to each side: the entrance was from the vaulting.[c] The finding of these tombs and the columbaria is consonant with our theory that there once existed a roadway along this shore; for though not their invariable custom, it was usual for the Romans to bury their dead

[a] This term seems to have originally designated the curved beach between Sannazzaro or Barbaia and the Torretta di Chiaja, but now that the sea-wall of the Via Caracciolo has been finished (*circ.* 1884) all that remains of the natural shore line is in the fishermen's harbour.

Works upon the foreshore were executed under the commands of the Viceroy Toledo, and later of Charles III. (1745), who laid out the Via Mergellina. (*Storia del Reame di Napoli.* Cf. Lancellotti, *Promenade à Mergellina Pausilype*, Naples, 1842.)

PHILIPPO IIII. REGE.

ANTONIUS ALVARES TOLETUS
DVX ALBAE PROREX
UT HIC ETIAM OBLECTENTUR
QUIBUS INIMICA NAVIGATIO EST
MARGINEM HUNC AMPLIFICAVIT
AN. SAL. HUM. CIↃ IↃ C.XXVI.

Inscription in Sannazzaro's Church at Mergellina.

The breakwater of the harbour has been still further extended in our own times.

[b] Now either part of or very near the Villa Guercia.

[c] *Collina di Posilipo*, 76.

along the roads which led out of the towns, as for instance the Appian Way, the Street of Tombs at Pompeii, and the Via Campana at Pozzuoli, etc. although no such typical Street of the Dead has been found at Naples.

The palace built for Donna Anna Carafa, the wife of the viceroy, Duke of Medina, by the architect Fanzago, occupies the site (formerly known as the Secreta) of an older palace belonging to the Stigliano family, and of a still more ancient Roman building. (Plate L.) The foundations of the palace rest directly upon a solid rock which juts out into the sea, and appears to have been artificially trimmed square. The top of this rocky platform is about 15 feet above the water, which is some 5 feet deep off the end of the rock.

At some time previous to the erection of the palace the rock was severed from the mainland by a cutting now faced with masonry and covered over by the building. There are traces of Roman work still adhering to the outer weather-beaten side of the rock. Had the supposed road been carried round the outside of the rock it would not only have deviated from its direct course but would also have been exposed to the sea. We therefore think that the cutting through the rock, like others to be presently described, indicates the course of the ancient roadway, and that the thoroughfare between the beaches on either side was preserved by the builders of the Stigliano and Donn' Anna palaces, even though the subsidence of the land had resulted in the destruction of the roadway.

The only entrance to the palace was from the sea until the new road, which was partially reconstructed from the ruins, afforded an approach by the upper storey.

It is stated that several Roman tombs were found on the site of Donn' Anna's palace, which being in a line with the Hamilton columbaria before mentioned, lends additional support to the theory of the ancient roadways.

South of the palace stretches a beach which is only a narrow strip of sand now-a-days, but it must once have been a good deal wider, for we have been informed that so lately as the year 1820 it was possible to walk dry-shod past the Scoglio di Frisio to the Villa Grotta Marina. This confirms to some extent a

Ostium tumulorum Dongonem Bonitum memoria celebrat. A Rusticelleis metatarum agros Regium ductus apud Stiliani Principem devenit. Capaccio Lib. II.

In an illustration (No. 40) to vol. 3 of the *Voyage pittoresque* of Saint Non (1781), the ruins of the palace are shown with a road passing between them and the sea. As the road is not shown in contemporary drawings we believe that the artist drew from his imagination, unless the tradition of a road was told him.

PALACE OF DONNA ANNA PALAIA AT POSILIPO.

tradition current among the older fishermen of this coast, that the land along it is sinking, though we must always bear in mind that traditions about ancient beaches do not necessarily give us reliable information about ancient land-levels.

The obvious course for the road would have been along these beaches, close under the artificial-looking straight-cut rocks south of the Frisio, past and may be perhaps even under what is now the terrace of the Villa Grotta Marina. There are Roman ruins under the sea at this point which show it to have been one of the ancient building sites of Posilipo. Then the road passed inside two rocks named, like the *Insulæ Chœrades* at Taranto, after S. Pietro and S. Paolo, the inner aspects of which have been artificially cut, and through the next headland (Cavalcanti), where an ancient tunnel, now partly walled up and used as a boat-house, traverses the rock (fig. 20). The floor of the tunnel is flooded to a depth

Villa Grotta Marina.

Fig. 20. Cala SS. Pietro e Paolo as seen from the north end of the Cavalcanti Tunnel.[a]
The two rocks are shown to the right of the Villa Grotta Marina.

of 5 feet; a measurement which, if our theory be correct, will give us the depth to which the roadway has become submerged at this point. Attention should be drawn to the fact that a road following the line indicated would not deviate much from a straight course.

From this point we have not been able to trace any indications of the road-way. It must have passed under the low cliffs of the headlands of Roccaromana and the Villa Mazziotti, then across the sandy beach of the Cala Selvina under the villas of Montesanto Capella and d'Abro to the Cala S.M. Tramontana (6 feet deep). From here through the next headland of Durante (now Villa Luisa)

[a] From *Collina di Posilipo*, pl. 20.

another weather-worn tunnel,[a] about 26 feet by 20 feet high, having its floor 6 feet under water, and like that which pierces the Cavalcanti promontory, used at present as a harbour and partly walled up, led to the beaches and cutting behind the Villa Maraval (formerly Cancellieri), which the owner, the late Mr. George Rendel, enclosed within the works surrounding his harbour.

Below the Villa Luisa, standing on a shelf of rock covered by the sea, are four masonry columns and other ruins which we take to have belonged to a Roman house of some size, but which have at a later date been used to support the terrace of the villa; bits of ancient work are also to be seen at the northern entrance of the tunnel and the old mortar is full of fragments of marble. Roman remains were discovered by Mr. Rendel during the construction of the inner basin of his harbour.

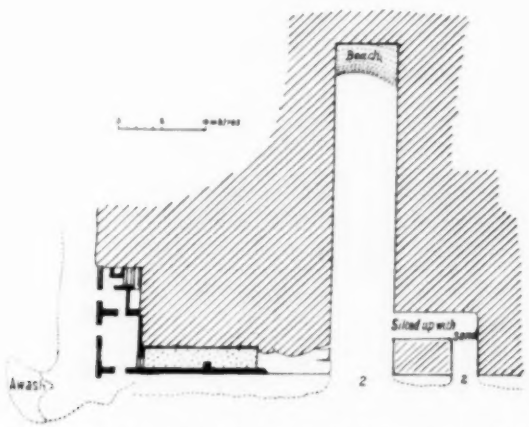


Fig. 21. Plan of House and Cave on Grotta S. Giovanni Headland.

From Villa Maraval there is a deviation in the straight course of the road, and it seems to have followed the sinuosities of the coast line. It is true that a large cave known as the Grotta S. Giovanni[b] runs through the next headland, but this seems to us of a much later date than the tunnels before mentioned, and its southern end, where it opens on to the little beach of Cala Cucina, is not straight enough for a roadway. We must assume therefore that the road between the Villa Maraval and the Capo di Posilipo passed on the outside of the intervening headlands.

At the corner of the promontory pierced by the Grotta di S. Giovanni are

[a] The reader of the paper was indebted to Mrs. Holcombe Ingleby for the loan for exhibition at the meeting of the Society of a painting in oils which shows this tunnel.

[b] 13 yards wide by 95 yards long.

the ruins of an old house, which now stands so near to the water that the waves lap over its terrace and even dash into its door in storms. Needless to say it has been abandoned. The site was probably a Roman one, and although the ruins seem to belong to a more recent period, we found marble and blue mosaic fragments mingled in the mortar of the walls. An attempt has evidently been made to render the house habitable, for the north window and one of the two east windows of the principal room have been walled up. A passage seems to have led from this house to a low artificial cave.[a] The floor is submerged to a depth of 6 feet. A small side branch 7 feet high opens out of the northern side, and becoming 4 feet lower, opens on the face of the cliff. At the back of the cave a spring of water, good for the eyes, is said to have its source. The floor of the cave having been quarried may be considered, as is the artificially trimmed rock platform in front of the house, an indication of the subsidence of the land.

At the southern end of the beach of the Cala Cucina are three ancient caves now partly walled up, but as their floors are nearly 6 feet above the sea-level they do not yield additional evidence concerning the subsidence of the land.

The headland, formerly belonging to the well-known property of Keppel Craven, but now owned by Signor Gallotti, seems to have preserved traces of the ancient way along the foot of the cliffs in the flat rocks, submerged and covered by a luxuriant growth of green seaweed.

One of the few deep places along this shore is between the rocky reefs upon which the terrace of Villa Gallotti is built and those which support the northern wall of the Manzi harbour. The depth of water is 13 feet, but inasmuch as the distance between the reefs is not great, the gap would not have been hard to fill.

We then come to the beaches on which stands the Polveriera, a powder magazine of Bourbon times but now used by Signor Manzi as a depôt for his wine. He has enclosed a small harbour by constructing a breakwater. Beyond this are the flat rocks which lie round the Capo di Posilipo and over which an excellent road might be made, if they were but a few feet higher and therefore raised above the water.

We have now considered some details of the stretch of the Posilipo shore from Mergellina to Capo di Posilipo as they are shown on the old drawing of 1710 and as they exist at the present day. And we have shown that these details seem to tell in favour of the subsidence of land and of the former

[a] About 23 feet wide by 121 feet long by 11 feet high above water.

existence of an old road. On the whole, vestiges of Roman work are not as numerous as they are along the southern section of the coast. And so we should feel tempted to hazard the conjecture that the great beauty of the southern extremity of the Posilipo Promontory made it more popular in Roman times than the eastern side, which is so much sought after now, were it not that the proximity of an expanding town and the great number of villas which have been erected during the last two or three centuries may have caused the scattering of the materials of which the Roman buildings were constructed and have thus effected their obliteration.

THE APPROACH TO NEAPOLIS FROM THE WEST BY THE GROTTA DI SEJANO.

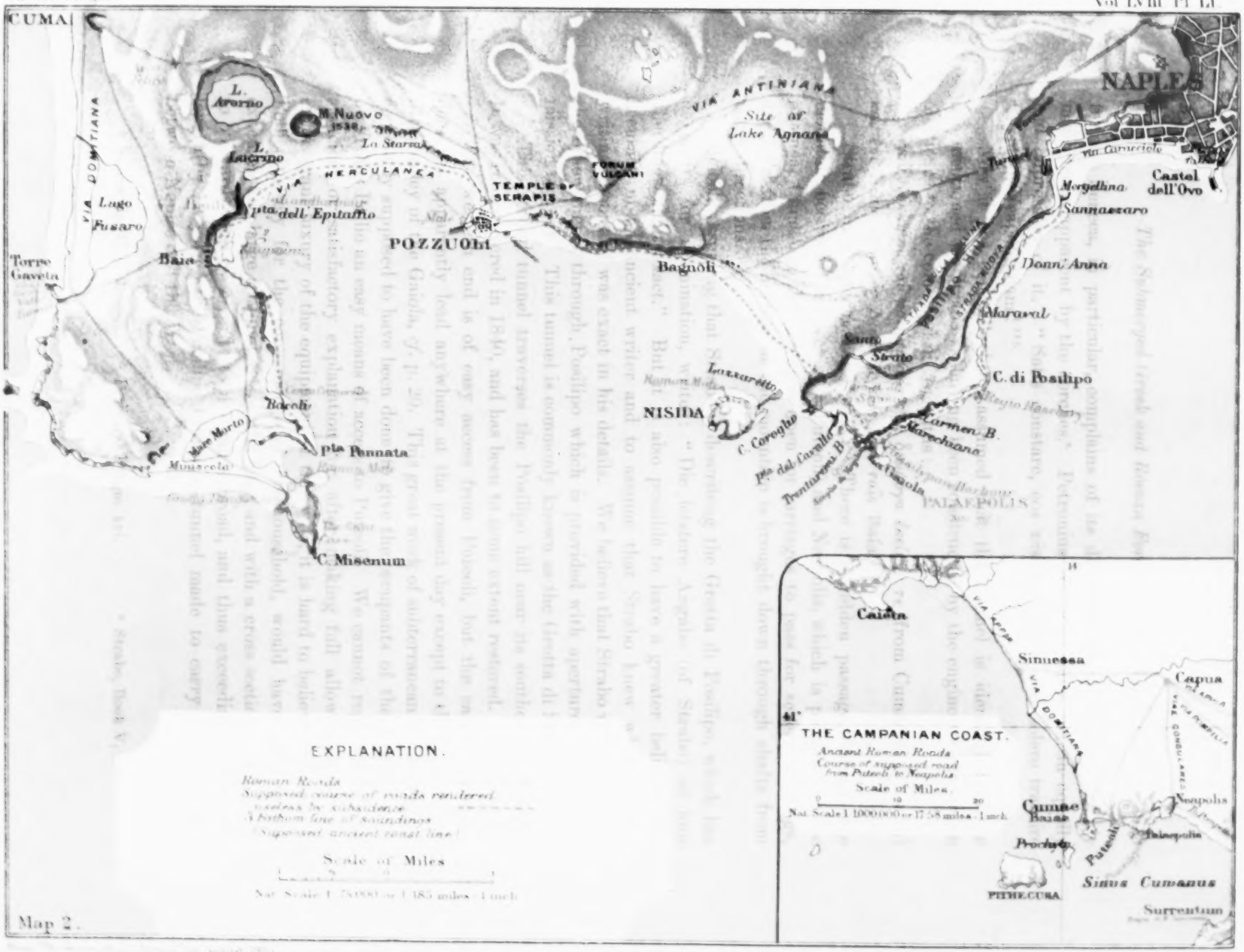
In the days of the Roman dominion two main roads led from Rome to Neapolis. The one, the Appian Way as far as Capua, whence a consular way led due south through Atella to Neapolis; the other, leaving the Appian Way at Sinuessa, proceeded along the western shore to Cumae, where, turning eastward, it passed under the Arco Felice to Puteoli and thence to Neapolis. An inscription found at Castel Volturno shows that a road from Sinuessa to Cumae existed in the days of the Republic, but as it was remade by Domitian it has acquired the name of the Via Domitiana, and is described as such by Statius. It was the shorter route by some three miles. (*Cf.* the inset to Map 2, Plate LI.)

The approach to Naples from Puteoli is made difficult by the interposition of the volcanic ridge of Posilipo, which rises like a steep rampart on that side. In consequence, the engineering of an easy roadway has been a matter of great difficulty.

The view which is commonly held concerning the ancient roads between Naples and Puteoli is summarised by Beloch.[a] The most ancient road between the two towns, the Via Antiniana, left Naples from the north-west; behind the Museum it ascended to the plateau of Antignano, and passed by Soccavo and the site of Lake Agnano to Puteoli (Map 2).

A second road passed through the Grotta Vecchia di Posilipo, a tunnel 774 yards in length, artificially cut through the mountain. This tunnel is referred to by classical writers as the Crypta Neapolitana, and usually in no favourable

[a] *Campanien*, p. 83



RECENT & ANCIENT COAST LINES OF THE PHLEGRAEAN FIELDS.

NAPLES
Castel dell'Ovo
Monte Nuovo
L. Averno
PUTEOLI
MISENUM
Cape Misenum

terms. Seneca, in particular, complains of its darkness, which, he adds, is only made more apparent by the torches.[a] Petronius seems to have had an equally bad impression of it. "Satis constare, eos nisi inclinatos non solere transire Cryptam Neapolitanam!"[b]

Now it has generally been assumed that this tunnel is identical with the one mentioned by Strabo as having been constructed by the engineer Cocceius, in obedience to the command of Augustus:

τοῦ Κοκκηίου τοῦ ποιήσαντος τὴν διώρυγα ἐκείνην τε (from Cumae to Avernus) καὶ ἐπὶ Νέαν πόλιν ἐκ Δικαιαρχείας, ἐπὶ ταῖς Βαίαις.

Strabo in a later passage[c] says: "There is a hidden passage through the mountain between Dicaearchia (=Puteoli) and Neapolis, which is pierced like the one near Cumae, so that a way is open for carriages to pass for several furlongs, and light from the outside of the mountain is brought down through shafts from many directions."

Beloch, assuming that Strabo is describing the Grotta di Posilipo, which has *no* shafts for illumination, writes: "Die letztere Angabe (of Strabo) ist nun allerdings nicht exact." But it is also possible to have a greater belief in the accuracy of an ancient writer and to assume that Strabo knew what he was writing about and was exact in his details. We believe that Strabo was describing the other tunnel through Posilipo which *is* provided with apertures for the admission of light. This tunnel is commonly known as the Grotta di Sejano.

This second tunnel traverses the Posilipo hill near its southern extremity. It was re-discovered in 1840, and has been to some extent restored.

The western end is of easy access from Puteoli, but the eastern opening does not apparently lead anywhere at the present day except to the ruins in the little valley of the Gaiola, *cf.* p. 20. This great work of subterranean engineering is commonly supposed to have been done to give the occupants of the palatial villa of Vedius Pollio an easy means of access to Puteoli. We cannot regard this as a sufficient or satisfactory explanation for, after making full allowances for the extravagant luxury of the equipment of this villa, it is hard to believe that even a Pollio, merely for the convenience of his household, would have gone to the expense of so large a tunnel, 844 yards long, and with a cross section of 9·2 yards to 5·7 yards high by 7 yards to 4·7 yards broad, and thus exceeding in size and length(by 79 yards) the Posilipo tunnel, a tunnel made to carry all the traffic between Naples and the West.

[a] Seneca Ep. 57, 1, 2. [b] Petronius Fragm. xvi. [c] Strabo, Book V, c. iv, 7.

If further testimony be needed that this great triumph of engineering was more than a mere underground private carriage drive, such as has been constructed at Welbeck by the late Duke of Portland, it is supplied by the two inscriptions which were found here.[a]

The first shows that a restoration of the tunnel was undertaken in the fifth century :

IONORIO
IAVSILIP
CLECTAA
RAIVSVCCAMP
PVBLICO REDDIT

The second is on a milestone, the very existence of which indicates a main road :

VII
D.N
FL.VAL
CONSTANTINO
PIO.FEL
INVICTO.AVG
DIVI.CONSTANTI
PII.FILIO

The submerged ruins of the foreshore supply us with a final proof of the extreme likelihood that the Grotta di Sejano was the shaft-lit tunnel referred to by Strabo, and was made by Agrippa to carry the high road from Rome to Naples.

If we consider that beneath the sea there is abundant evidence of the former existence of a considerable and thickly populated area, with a sea-board lined by the residences of the wealthy and influential, and remember that near by stood a theatre and many other important buildings, and that there were two ancient harbours at no great distance, then we have a new and more likely explanation of the purpose of this magnificent tunnel, and in its existence here we find the final link in our chain of evidence in favour of the low-level road which served as the chief means of communication along this shore.

[a] Beloch, *Campanien*, 87.

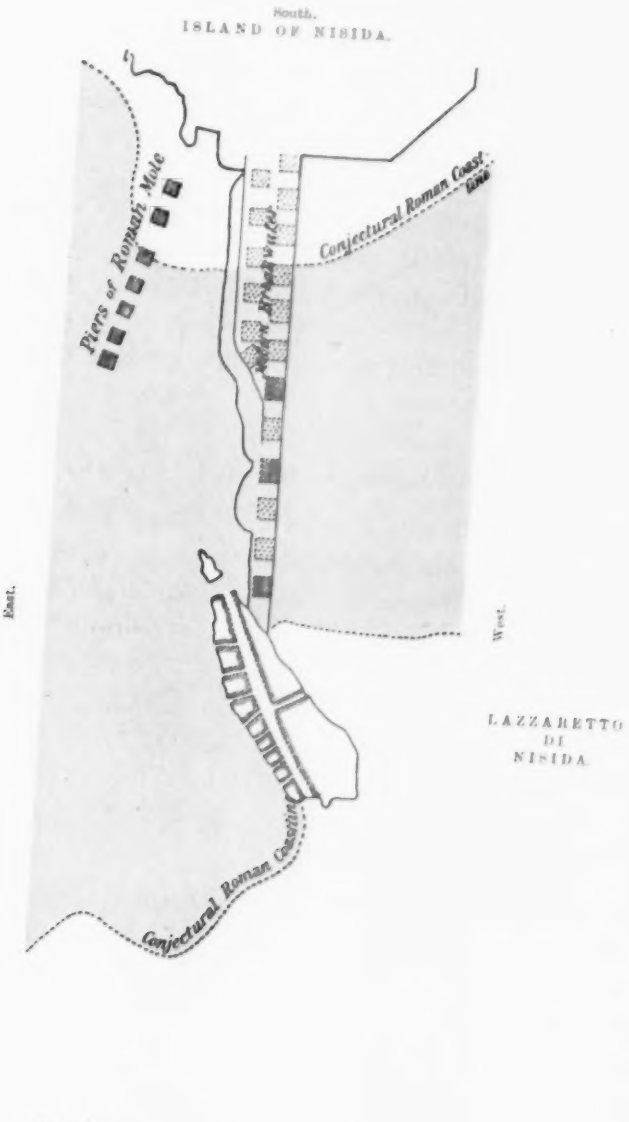


Fig. 22. Plan of the Tunnel in the Rock of the Lazzaretto di Nisida, and of the ancient and modern harbour works.
Roman work [illegible]

If we may here retrace our steps along its imagined course, we would suggest that the road on emerging from the eastern end of the tunnel would follow the Vallone di Gaiola as far as the beach of that name. From there a branch probably went to houses of the Gaiola Region, the conjectured site of Palaepolis, while the main road followed the shore eastward inside the Pausilypon harbour. By the side of the road stood the Marotta House, the Lampi House, the House of the Three Buttresses, and the Casa degli Spiriti. The road passed between "Pollio's fish tanks" and the old house, it skirted Marechiano Harbour, and finally, before rounding the Capo di Posilipo, traversed what is now the fishermen's harbour by Villa Rosebery and gave access to the ancient buildings of the Rosebery Region. From the Capo di Posilipo to Naples the course of the road has already been fully described.

THE SUBMERGED REGIONS OF NISIDA, BAULI, AND MISENUM.

Many changes in the configuration of the coast line of the Phlegræan fields must have taken place as the result of the subsidence of the land. To the shifting of the position of the lagoons, the Lucrine, Mare Morto, and the Acherusian Lake or Lago Fusaro, and of their sand-bars, we have drawn attention elsewhere. It now remains for us to mention certain partly submerged sites which would be likely to repay further study.

LAZZARETTO DI NISIDA.

The rocky islet of the Lazzaretto di Nisida is tunnelled from end to end by a

Fig. 23. Lazzaretto di Nisida, North End of Passage.

passage of some 15 feet in height, of which two-thirds are under water. The passage was lit by apertures, now submerged, cut through the sides of the rock as

shown in the plan (fig. 22). At the northern end (fig. 23) a round arch of flat tiles supports the superincumbent rock; at the southern end is a pointed arch of alternating layers of tiles and tufa (fig. 24). The end of the rock was faced with *opus lateritium*.

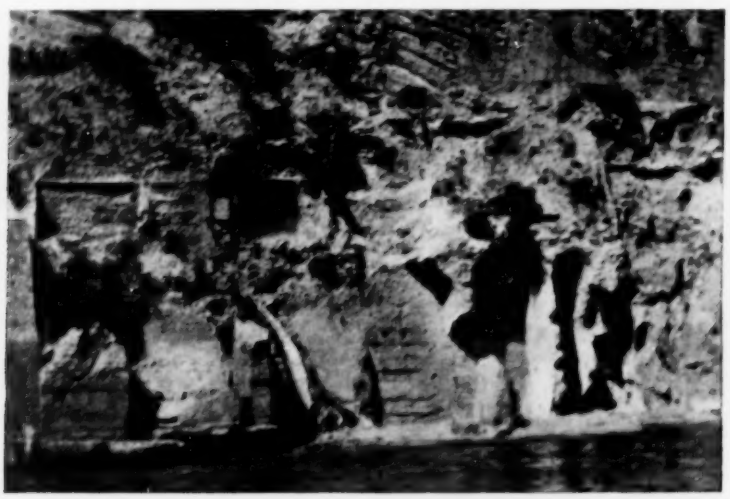
Fig. 24. Lazzaretto di Nisida, South End of Passage. The upper part is modern.

The rock seems to have stood in the ancient harbour at the end of a sandy beach, and it was no doubt covered over with buildings as at present, but the purpose of the remarkable passage we are at a loss to divine.

BAULI.

The beaches of the Lucrine Lake and of Baia are separated by a headland, the Punta dell' Epitaffio, which, jutting out into the sea, forms the northern limit of

the Bay of Baia. At the Roman land-level the bay, as we now know it, did not exist, its place being taken by a shallow lagoon separated from the sea by a sand-bank. We have elsewhere[a] identified this lagoon with the Stagnum Baiarum[b] which was cut through by Nero, and with the STAGNV represented upon the Piombino glass vase.[c] The sand bar between the lagoon and the sea would have been continuous with a beach which probably extended all round the Punta dell' Epitaffio. The modern road from Pozzuoli to Baia rises high enough from the sea



Floor.

Fig. 25. Seaside houses under Tufa Cliff at Bauli.

to pass through a cutting near the extremity of the headland, and many ruins may be seen on the hillsides.

Scotti and Mortorelli support their contention that the ancient Bauli is to be identified with this site rather than with Bacoli on the other side of Baia by much interesting and convincing erudition, and we are fully in agreement with their view that Bauli must have been here near the Via Herculanea, and between the "portus Baiarum" and "Lacus Lucrinus."[d]

The shore is lined with the ruins of ancient houses of which the greater part

[a] Geographical Journal, September, 1903.

[b] *Vit. Alex. Severi*, 26.

[c] An early specimen of that topographical crockery, which visitors to seaside watering-places love to bring back to their relations. It was found at Piombino. De Rossi, *Bull. Nap.* n. s. I. Pl. ix. A similar vase is preserved in the Museo Borgiano de Propaganda.

[d] Pliny, 3, 5, 9, § 61; Tacitus, Ann. xiv. 4; Symmachus I. i.

have been washed away; all are too near the water to be habitable, and plainly indicate the subsidence of the land.

These ancient remains begin under the turn of the road near the sudatoria, commonly called Nero's baths, with a one-storeyed building, of which the floor of the principal room is now scarcely raised a yard above the water.

A few yards further south are the ruins of a more important building, also built against the cliffside (fig. 25). On the south (left) are parts of a massive ancient pavement of *opus signinum* laid on concrete. The outlines of vaulted ceilings, both over the ground and first floors, are clearly marked on the cliff at

Fig. 26. Roman House at Bauli.

the back of the house. In the adjacent structure to the north the more perfectly preserved side walls and vaulting show that the ground-floor rooms were higher than in the case of the southern building.

Other Roman walls have been covered over by the large wall built to underpin the new roadway, and round the point a succession of ruins on the water-line extend as far as the beach of Baia: these we believe to have belonged to buildings which looked out upon the *stagnum Baiarum*.

The most easterly group of ruins is situated at a short distance beyond the retaining wall, which nearly reaches the Point. They commence with the remains of three chambers under a broad spreading vault, a single chamber, and a broad arch.

West of the little modern wooden pier is the most imposing of the ruins, a three-storey building of which the lower storey is submerged (fig. 26). The scale of the building may be judged by the fact that the chambers are $3\frac{1}{2}$ yards across, and that the vaulting of the ground-floor rooms is 6 feet above the water-level, the floor being about 5 feet below. At the water-level is a course of red tiles perforated with round holes. It is interesting to note that the walls have been eroded at the springing of the vaulting of the upper storey. We have, therefore, further confirmatory evidence of the greatest submergence having occurred since Roman times; and the well-preserved nature of that part of the building which is below the erosion line shows that the earth-movements must have been relatively rapid.

In the face of the cliff above the beach may be seen many chambers of another building, of which the front wall has been demolished by the waves.

When the land-level of the site of Bauli was at a higher level, the road from Baiæ to Puteoli probably passed along the beaches under the Punta dell' Epitaffio, thus providing all the buildings on the shore with an easy means of access, and then along the Via Herculanea close to the edge of the water: and by this highway the first seaside houses at Bauli may have sprung up.

The buildings of Bauli, of which we have some record in literature, are the Temple of Venus Lucrina, which may have stood on the Punta dell' Epitaffio itself;[a] the country house of Pompey the Great, which was situated "summis jugibus montium[b];" the Cumanum of Marcus Varro, which was not far off;[c] and the villa of Quintus Hortensius, at which C. Avianius was expected notwithstanding the attractions of the Puteolan Arcades[d]; it was here too that Antonia, wife of Drusus, decorated a tame muræna with earrings. This last villa must have been low down near the Bauli end of the Lucrine Lake; but as the Lucrine Lake probably lay further to the south, as well as at a much lower level, than its small shrunken representative does now, it is not impossible that the site of the villa may have been that of a building near the site shown in fig. 25, and on the eastern side of the Epitaffio headland.

[a] Beloch, *Campanien*.

[b] Seneca, Ep. 51.

[c] Cic. *Acad.* pr. i, 1.

[d] C. Avianium fortasse in porticu neptuni ambulantem. Cic. *Acad.* pr. ii, 25-80.

CAPE MISENUM.

The Great Cave.

The largest artificial cave in this neighbourhood has been hollowed out of the cliff on the eastern side of Cape Misenum (fig. 27). The outer hall is nearly square in plan, and measures 75 feet wide by 57 feet high. The roof was originally barrel-shaped, but much stone has fallen from it. At the inner end there is a continuation measuring some 39 feet square and 34 feet high above the present water level. In the west and south walls are niches at the water line. The floor cannot be seen, being covered with debris and water, but it must be at least 6 feet

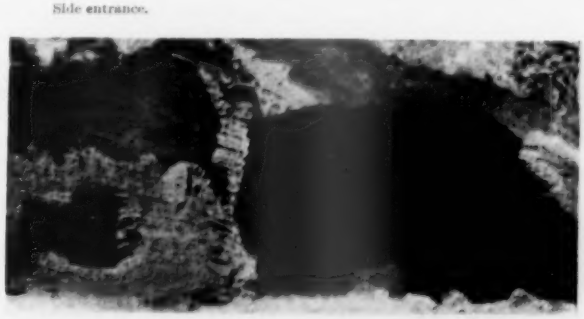


Fig. 27. The Great Cave at Misenum.

below the surface. From the middle of the southern wall of the large cave a passage (now partly filled with water to a depth of 6 feet) leads to an inclined way, measuring 13 feet broad by 14 feet high, which opens on the face of the cliff at about 10 feet above sea-level, and to the south of the principal entrance to the cave. That this great cave was no mere stone quarry is proved by the fact that traces of an internal plaster coating still adhere to the roof of the inner cave, and that both the inner and outer caves were decorated with a cornice in relief cut from the solid rock, which runs all round under the springing of the ceiling (fig. 28).

A line of foundations is to be seen under water at the mouth of the cave. Outside the soundings rapidly deepen, so that at 16 feet from the front of the cave we find from 23 to 29 feet of water. It therefore seems likely that supposing the land to have been, say, 16 feet higher in Roman times, which would have been ample to ensure a dry floor to the cave, there would still have been enough water

for boats to come alongside the entrance: landing, however, except in calm weather, must have been difficult.

Of the history of this magnificent cave there is no tradition. It is not likely to have had anything to do with Agrippa's harbour works, for they would all have been in the bay, out of the way of storms. Nor does it seem likely that this hall in the rock was a luxurious appendage to some noble villa which stood

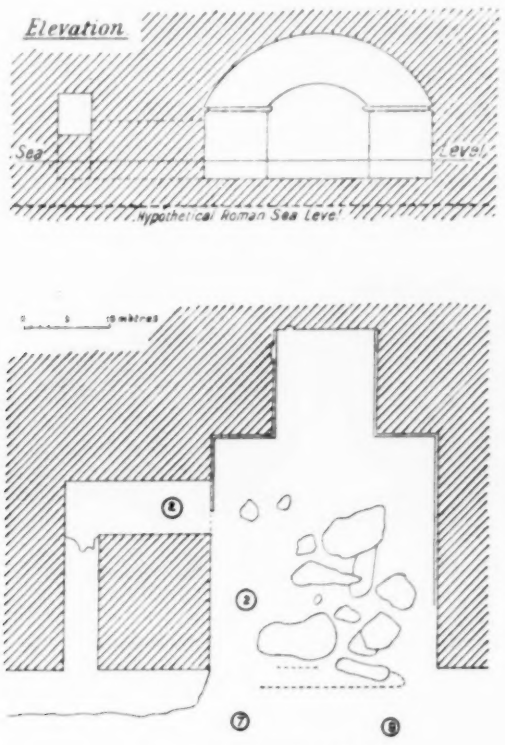


Fig. 28. The Great Cave at Misenum.
The numerals on the plan indicate the soundings in metres. The double line represents the cornice.

upon the hill above, although the villa in which Tiberius died and which had cost Lucius Lucullus two and a half million sesterces may well have been provided with such a cool retreat. In character the cornice reminded us strongly of the echinus of Greek Doric capitals such as are seen in the temple of Poseidon at Pæstum, and on this account, together with the general resemblance of the plan of our cave to that of many a rock-hewn tomb in Ægina and elsewhere, we believe it to be a monument to a Greek hero, perhaps to the steersman of Æneas, who

died at Cumæ, and with whose name the mound-like promontory has ever been associated.

We believe that a path led from the cave southward along the foot of the cliff to the point where there is a passage through the rock. The floor of this passage is 16 feet below the surface, but there seems reason to believe that, like the passages through the Punta Pennata, it is artificial, and was formerly above water. The present condition, however, is such that we have steered a steam launch through both passages.

Rock-hewn Chambers near the Grotta Dragonara.

Near the Grotta Dragonara, at the eastern end of the Spiaggia di Miniscola, and at the foot of the north-western slopes of the old volcanic hill of Misenum, there is a row of small chambers, some built, some excavated in the tufa rock,

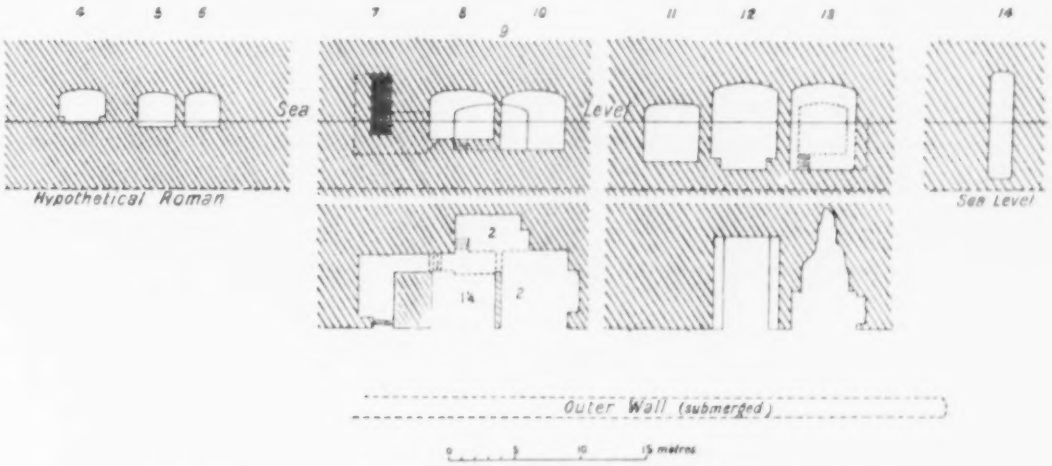


Fig. 29. Elevations and Plans of Submerged Chambers (4-14) near the Grotta Dragonara.
The numerals in Chambers 8, 9, *and* 10 *indicate the soundings in metres.*

which are at the present day partly submerged in water, partly buried in the sand of the beach. The character of the various chambers and the extent to which they are submerged will be described in the detailed analysis below. The walls of *opus reticulatum* still standing in some of the chambers show that they were used in Roman time, and that they may have been inhabited when the villa of Caius Marius, near the summit of the mountain, was occupied by Lucullus or Tiberius,[a] or when Augustus (B.C. 31) created a naval station of considerable

[a] Phædrus, ii, 5.

importance upon the site now occupied by the village of Miseno, between the Miniscola and the northern slopes of the mountain.[a]

The floors of several are 12 feet below the surface of the water: the walls show traces of having formerly been plastered: steps leading from one room to another at a lower level can be clearly seen below the water. With regard to their history we can merely suggest that they may have been Greek tombs, which became used as dwellings or for other purposes by the Romans.

Notwithstanding the comparatively sheltered nature of the spot, the greater part of the western walls has been washed away; indeed the artificial hollows in the rock are all that meet the eye; but foundations lying parallel to the shore may be seen below the surface. It is possible to walk or wade into the chambers at the north end of the series from the beach, but those at the south end open on to deep water. And, although not an invariable rule, the floors of those chambers which are furthest from the beach are at a lower level than those nearer the beach.

In the following table the chambers are described in order from north to south, proceeding from those which may be entered dryshod from the beach to those to which there is no access except by boat: the numbers correspond to those in the plans (fig. 29).

Short Notes on partially submerged Chambers in the Rock near the Grotta Dragonara.	Height of Ceiling above Water Level.		Depth of Floor below Water Level, at least.	
	Feet.	Ins.	Feet.	Ins.
1. Floor silted up with sand	6	6		9
2. Low ceiling, almost entirely submerged . .	1	6	(?)	
Steps to fisherman's house.				
3. Chamber, at least 13 feet high, with a passage (ceiling 3 feet 6 inches above water level) leading out from its south wall	10	0	3	0
4. A shallow excavation, showing ancient plaster upon its walls and an indication of two raised seats, 1 foot 6 inches, along the side walls. *Cf.* No. 12 .	8	6	—	

[a] Cp. Pliny, *Letters*, vi. 16, 4.

Short Notes on partially submerged Chambers in the Rock near the Grotta Dragonara.	Height of Ceiling above Water Level.		Depth of Floor below Water Level, at least.	
	Feet.	Ins.	Feet.	Ins.
5, 6. Almost entirely washed away; a mere scar upon the rock behind indicates the former existence of these two chambers. Also indication of former existence of a room above	6	6	—	
	6	6	—	
7. Narrow. A wall of *opus reticulatum* has been built across the inner end of this chamber to divide it off from a rather broader and deeper chamber within which latter also communicates with Chambers 8 and 9	11	6	3	0
8. The floor of this chamber is 4 feet below the level of the water; it communicates with the chamber behind Chamber 7 and also with Chamber 8 by short flights of steps, which are entirely submerged	11	6	4	0
9. The floor of this submerged chamber is on a level with that of Chamber 10, but 2 feet 6 inches below that of Chamber 8	4	6	6	6
10. About 5 metres wide. Chambers 8 and 10 form a pair connected by 9	11	6	6	6
11. Not so deep as the adjoining chambers	4	6	10	0
12. Two raised seats along the side walls, as in No. 4 and in the Grotta di S. Giorgio, near Sorrento. *Cf.* the seats in the Gaiola Cave, described on p. 26	10	0	11	0
13. A shallow lateral extension on the south side, as in No. 10. The hinder portion of the chamber is apparently in an unfinished state, and the dimensions are smaller than those of the outer chamber. Steps lead to the raised floor	10	0	11	0
14. The highest of all the chambers. The floor is also lower than that of the other caves nearer the Miniscola Beach	12	9	13	0

APPENDIX.

The Topography of Posilipo.

In our account of the course of the ancient roadway it has been found necessary to go into the topographical detail of Posilipo with so much minuteness that the ordinary geographical nomenclature is insufficient. When unable to discover the name for any locality, we have adopted the Italian custom of calling it after the owner or occupant of the property. To this custom is due an ephemeral nomenclature and much confusion, for the names as they stand at present rarely agree with those given in the old maps, and sometimes not even with those mentioned by recent authors. We have therefore compiled a table of synonymous names for the assistance of the reader, who may desire to follow our description with old maps.

To those who are interested in topographical history we would recommend the maps by Rizzi-Zannoni, and especially the beautiful and accurate map (scale 1:25,000) prepared by the French engineer officers during the French occupation, which was productive of so much profit to Naples. From these and other sources of information we have collected the names which are summarised in the accompanying table.

NAMES OF POSILIPO HEADLANDS AND COVES AND OF THE HOUSES THEREON

Arranged in sequence from north-east to south-west.

The names of the more conspicuous headlands are distinguished by numerals. An asterisk * indicates a name in the French Map of 1818. [ ] = mistaken identification. T = tunnel or cutting through headland. R = ancient site. V = villa.

NAMES ADOPTED BY THE AUTHOR.		SYNONYMS.	NICCOLINI'S NAMES AND NUMBERS TO THE PANORAMA OF 1710.[a]
*Mergellina	R		
1. * Sannazzaro		Barbaia	4. Sannazzaro
V. Roccella		* de Bernardo, V. Carolina, V. Sciarra, V. Giulia	6.
* Fortino V. Guercia		*Rossetti	7. [Edifici demoliti nel costruire la nuova strada di Posillipo sulla collina] (Probably an error)

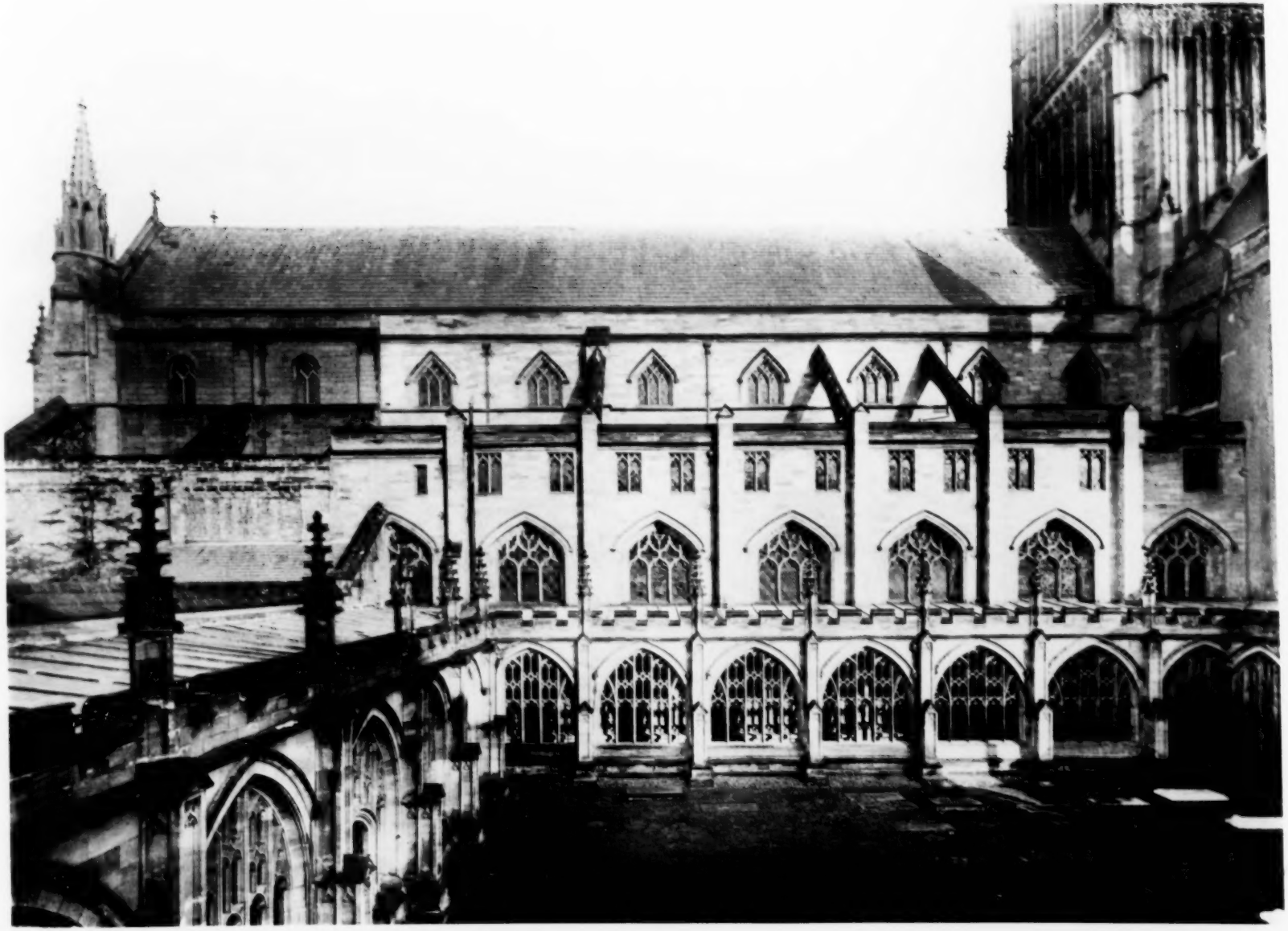
[a] Plate XLIX.

Names adopted by the Author.		Synonyms.	Niccolini's Names and Numbers to the Panorama of 1710.
2. Donn' Anna	TR	* Fabbrica di Cristalli, Palazzo Medina	9. Palazzo di Dognanna, oggi vetriere
. . . . .		* Frisio	. . . . .
3. Grotta Marina	R	(unnamed)	12. [Frisia], oggi taverna
Cala SS. Pietro e Paolo		* S. Pietro a due Frati, Cala due Fratre	(The two rocks are shown)
4. * Cavalcanti	T	V. Tafuri V. Calabrese	13. [S. Pietro a due Frati], oggi taverna 14. Principe di Colombrano, oggi taverna
. . . . .		. . . . .	. . . . .
5. * Roccaromana			(omitted)
. . . . .		. . . . .	. . . . .
6. * Cappelli		V. Mazziotti	15. [Roccaromana] (*cf.* p. 40)
* Cala Selvina		V. Capella, Vecchio Convento di S. Geronimo	(Drawn, but not named)
7. * Sivo		V. Cappella di Montesanto V. d'Abro	16. [Palazzo di Capelli], oggi taverna
* Cala S. M. Tramontana		. . . . .	. . . . .
8. V. Luisa	T	* Durante, "casa diruta"? V. Garunchio	(Drawn, but not named)
Casa Severino	R	"Bagno romano"	
9. Maraval	R	*V. Cancellieri, V. Rendel, V. Rocca Matilde	17. Palazzo di mal costume, oggi taverna
* Cala Grotta S. Giovanni		. . . . .	. . . . .
10. Grotta S. Giovanni		* Capelli, "Casa caduta"	18. Casa Romana diruta (but the picture shows a well-built mansion!)
* Cala Cucina		(Caves of doubtful reputation)	

Names adopted by the Author.		Synonyms.	Niccolini's Names and Numbers to the Panorama of 1710.
11. * Keppel Craven[a]		V. Antona Traversi V. Gallotti	19. Convento di S. Giovanni, oggi locanda
* Polveriera (de Mellis Trattoria) (Landing place)		Stabilimento Manzi	20. Ruderi di fabbriche romane 21. Ruderi di fabbriche romane
12. * Capo di Posilipo	R	* Lavoratorio, V. Volpicelli * Fortino del Capo	22. Palazzi della punta del capo, oggi taverna
Villa Rosebery Harbour	R	V. Delahante, V. del Principe Luigi	
13. V. Emma * Pozzillo		*Cannonate, Sciavechiello	
14. * Campanello Carmen Bay		Cala Garofalo, * [Zaffarana]	
15. Pacelli Peschiera		* [Cala Garofalo]	
. . . . .		. . . . .	
16. Malatesta	R	Punta Nera	
Cala di Punta Nera	R	* [Portiglione][b]	
17.	R	. . . . .	
Marechiano Harbour	R	* Peschiera	
Casa degli Spiriti	R		
18. House of Three Buttresses	R	* Belvedere	
Cala di Lampi	R		
19. * Marotta	R		
Cala di Gaiola	R	Cala S. Basilio	
20. * S. Francesco	R		
Gaiola Channel	R		
21. Scoglio di Virgilio	R		
* Cala Trentaremi	R		
22. * Cavallo			
* Cala Badessa	R		
23. Capo Coroglio		Corogno	

[a] This property was given to the Margrave of Anspach by Ferdinand I.

[b] The Portiglione proper is really on the other side of the headland, within the harbour of Marechiano.



EXTERIOR VIEW OF THE CATHEDRAL LIBRARY AT WORCESTER.

Published by the Society of Antiquaries at London, 1902.

XXIII.—*The Mediæval Library of the Benedictine Priory of St. Mary, in Worcester Cathedral Church.* *By the* Rev. J. K. Floyer, *M.A., F.S.A.*

Read 12th March, 1903.

A writer on the subject of the ancient Library of the cathedral priory of St. Mary, Worcester, is confronted by unusual difficulties, in the dearth of documents which throw light on it. No catalogue of the books is preserved of a date anterior to about 1650, and this is an incomplete and very roughly made one.* The library has been moved more than once, and the architecture of some of the buildings which contain it has been altered or renewed at subsequent periods. If reliance therefore is placed on external evidence alone, the history of the library would be most meagre and uncertain. Fortunately a good portion of the library itself remains, and tells something of its own history. Moreover, from a close examination of the existing buildings, of the chisel marks and varieties of stone, the architectural history can be to some extent collected.

The library, which, as an institution, is older than any portion of the present buildings, appears originally to have been situated very much where part of it remains now, that is to say, over the south aisle of the cathedral church, between what was the monastic dormitory and the nave. (Plate LII.) The two western bays of the church are of the twelfth century, and over the south aisle of this portion still exists a small room, now an ante-chamber to the present library, which may have been part of the room where the books were kept in earlier days. It is approached by a circular staircase of fifty steps, from the cloister or the church itself. Eastward of this all the upper part of the south side of the church was rebuilt towards the end of the fourteenth century. The level of the vault of the aisle below was raised, and necessitated the introduction of six steps, which now

* Bib. Bodl. Tanner MS. 268, fol. 113.

lead from the western twelfth-century room into the present fourteenth-century library, which covers the whole of the remaining length of the aisle as far as the central transept. This fine room, 121 feet long and 19 feet 2 inches wide, is lighted on the south or cloister side by twelve two-light square-headed windows, all of the same size except the one at the west end, which is smaller, and has only one light. The whole of this room is built of red sandstone from the Holt quarries. This red stone is not used in the cathedral church before the beginning of the fourteenth century, but, with the exception that the older white and green stones are used for patching, is generally employed after this time. The use of this red stone therefore forms one of the most reliable data for distinguishing the work done before and after the beginning of the fourteenth century, and for determining to what extent the Norman walls were patched or rebuilt. A door in the east end of the present library leads into a small cell, constructed in the wall, with an aperture into the transept, no doubt arranged for the *armarius* on duty to hear the service. Thirty-seven feet at the west end of this room as far as the first great buttress have at one time been screened off to form a smaller room, and the walls covered with plaster, which was removed and the partition taken down thirty or forty years ago, though traces of them may be seen. The roof also has been heightened on the inner side to allow of a greater slope. The bookcases are now arranged all round the walls, and are backed with a considerable quantity of oak paneling, very roughly erected, and patched with deal. This was in all probability made to go round the chapter house when the books were placed there on the recommendation of Prebendary Hopkins, about 1700, and removed to the position it now occupies when the books were restored to their present situation about 1866.

It is generally safe, in considering the arrangements of a monastery, to conclude that restorations or rebuildings were made on the lines of the old, except where special circumstances had grown up to necessitate fresh departures. On this supposition we may conclude that the large aumbries still existing in the fourteenth-century work of the cloister were constructed to replace others in the earlier cloister, made to obviate in their time the disadvantage of the long flight of steps up to the library, just as, in later days, that is, about 1700, the books were removed into the chapter house on the ground floor, so as to make them more accessible than in their older depository.[a] There is evidence in the accounts

[a] From the accounts for work done in the cathedral restoration of 1661-2, the library was then in its original place over the south aisle.

of Prior Moore (1518-35) that the priory inventories, journals, account books, and service books were kept in the cloister aumbries, and as the cloister was, at least after its rebuilding in 1372, the *scriptorium* of the priory, it is a fair supposition that these cloister aumbries were also used for ordinary books in current use for copying or reading.[a]

If the above conclusions are correct, then the library from the twelfth to the end of the fourteenth century was housed chiefly in a room on an upper floor, over the south aisle, at the extreme west of the cathedral church, and partly in aumbries in the cloister.

The collection of volumes must have been a considerable one. There are 283 volumes still remaining which date from the eleventh to the sixteenth century, and sixty-six which formerly belonged to Worcester are in existence in other libraries in England. This makes a total of 349 now existing. Of this number a very few have been added since the dissolution of the priory. A thorough search would doubtless bring to light several others formerly belonging. To estimate the original total there must be added a large number of service books, which were generally the best written and illuminated, and so most liable to spoliation and dispersion, and a number which it is impossible to conjecture which have been either wantonly destroyed at different times or have perished through decay.

Of the 283 volumes which now remain in manuscript, only a few seem ever to have belonged to other religious houses and to have been added since mediæval times.[b] The great majority are of the fourteenth century. The earlier books, that is of the tenth to the thirteenth centuries, are for the most part collections of Homilies of the Fathers in Latin, including many of English writers such as Bede and Anselm. Another group written in Anglo-Saxon, many of which were left to Corpus Christi College, Cambridge, by Archbishop Parker, is made up of miscellaneous collections of Canons, Constitutions, Creeds, etc. and the Anglo-Saxon Homilies of Lupus, Aelfric, and others. Perhaps the most interesting early Worcester books now existing are the copy of Gregory's "Pastoral Care" (Hatton, 20) and a copy of Gregory's "Dialogues" (Hatton, 76), both apparently autographs of Werefrith, bishop of Worcester 873-915? and written for King Alfred. The "Pastoral Care" has the Worcester inscription on the first page, and the "Dialogues" begins with the celebrated preface of Alfred.

[a] See on pp. 168 and 414 of Noake's *Monastery and Cathedral of Worcester*. 1866.

[b] There are several formerly belonging to the Franciscans at Worcester, and one from the Priory of St. Dogmael, in Pembrokeshire (Fol. 150).

The Worcester copy of Florence of Worcester's Chronicle, which is contemporary with Florence, still exists (Corpus C. C. Oxon, 157), and two beautifully written manuscripts, apparently autographs of Prior Senatus (1189-1196) are preserved; the one a copy of the Vulgate (C. C. C. C. 48), the other of the Evangelists. (Bib. Bodl. Oxon. Rawl. G. 168.)

Possibly also a fine *Legenda Sanctorum*, now at Durham, may be an autograph of Senatus (B. 4, 39). Of twelfth-century manuscripts should also be mentioned the Commentary of Vacarius on Justinian, said to be the only copy of this work in England (Worcester Cathedral MS. Fol. 24). There is also of the twelfth or early thirteenth century an interesting group of early Latin translations of the works of the Arabian School of Medicine, Constantine of Monte Cassino, Isaac, Joanitius (Honein ibn Ishak el Ibadi), and others (Fol. 70, 85; Q° 39, 40, 41). It may be conjectured that of these, three (Q° 39, 40, and 41) were introduced by Mauger, bishop here 1200-14, who was some time physician to King Richard, and would have been interested in the study of medicine. There are early copies also of the *Liber Regalis* of Ali ibn el Abbas and of the *Almansor* of Abu Bakr Mahommed ibn Zakariya el Rhazi, which two books were popularly known to the mediæval medical student, distressed doubtless by the unaccustomed syllables, as *Haly* and *Razes*.

The books of the thirteenth century are not numerous, but among them should be mentioned the unique Worcester Service Book (Fol. 160), a combination of Processioner, Antiphoner, Kalendar, Psalter, Litany, Hymnal, Collects, *Sanctorale*, *Dirige*, and *Missale* according to the Worcester use. There is also a good group of books of Canon and Civil Law, chiefly Gratian's *Decretum*, with commentaries on it, and Justinian and his commentators. They have the characteristics of being as a rule particularly well written, with wide margins, and for the most part have been very little used.[8]

In the fourteenth century, to which the majority of the books belong, the influence of university life is largely felt. Many of the Benedictine houses had a house for their own students at Oxford or Cambridge, or at least a share in one. The Worcester students went chiefly to Gloucester Hall, now Worcester College. There they learned the art of writing after the newer models; they became authors, and added to the library by bringing home their books of study for their degrees.

[8] In the Cathedral Library of Hereford there is a similar group of works of canon and civil law which are much annotated and have been well used.

The monastic custom in later days of making entries on the fly-leaves of books as to their cost and of the succession of ownership is well known. In many of the Worcester books, in spite of careless rebinding, these entries remain. But even with their assistance it is impossible to determine which were written in the Worcester monastery or by the monks themselves, and which were purchased.

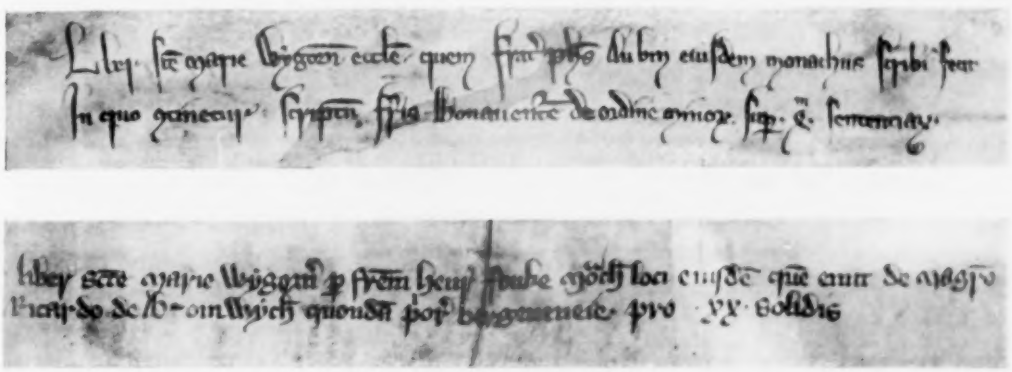


Fig. 1. Titles from MSS. in the Worcester Cathedral Library.

The common form of entry is, for instance, *Liber Sancte Marie Wygorniensis per fratres Thomam de Sedgesber' et Johannem de Wyke* (Fol. 37). Seggesberrow is

called in 1299 in the register of the prior and convent a "monk" of Worcester (Sede Vacante Reg.), yet he possessed books, and at his death at Rome a proctor was appointed to take possession of them (Annales Mon.). John de Wyke, whose name is also in the inscription, was a leading monk and prior, 1301-17. The meaning of the *per* is that the books were introduced to the monastery through the means of the particular monks mentioned, and not that they were the scribes. Again, at the end of another volume (Q° 42) is the inscription *Liber Sancte Marie Wygorniensis per istos undecem*, and a list of local monks is given, of whom John de Wyke is one, with a number opposite each name. It might be supposed that these were eleven scribes who had conjointly written the book, but the handwriting is either the same all through the volume, or so much alike that the difference between the eleven cannot be distinguished. Moreover, the total of the numbers in the list opposite the names of the monks is only 235, and there are 377 folios (counting the *tabula*) in the volume, so it may be concluded that the eleven contributed in different proportions to the purchase of the book, rather than that it was written by them.

Another similar entry is *Liber Sanctæ Marie*, etc. *per fratrem Henricum Fouke ex dono Ranulfi de Catthorpe*. In this case the *per* evidently means that the volume was acquired in Henry Fouke's time.

There is further evidence in these entries that a book was bought, not written, in that the price is often attached. In one (fol. 69), bound it is true in a style uncommon in Worcester books, there are some entries as to other books being lent, which suggests that it was bought second-hand from an Oxford *stationarius* who was in the habit of hiring out books for the schools, and that it was previously used by him to note his business transactions.

If this interpretation of *per* be correct, it greatly reduces the number of books written in the priory (exclusive of accounts, memoranda, etc.) after the twelfth century. The Worcester priory never seems to have had in its later days a large *scriptorium* such as St. Albans had, or possibly as the neighbouring abbey of Evesham, where the *scriptorium* was endowed; but the following endowment deed shows that an impetus was given to literary work at Worcester in the early fourteenth century. It is an appropriation by Bishop Walter (Maydenstone) of the church of Tibberton to the Precentory, on the ground "quod officium precentorie in Ecclesia nostra Cathedrali supra dicta propter sui exilitatem opera dicto officio incumbencia tam in librorum novorum scriptura quam antiquorum reparacione et emendacione Clericorumque dicto officio deservencium exhibitione (Equm quoque ac famulum propter negocia dicta Ecclesie expedienda adinvenire tenetur ex

consuetudine hactenus approbata) nec non in multis aliis rebus ipsi officio necessariis consistencia sustinere non valebat quovis modo."[a] (Fladbury 19 March.)

Most of this endowment may have been intended and used for materials for the registers, account rolls, and legal documents, but soon afterwards a good number of books were added; at least eight through Henry Fouke, who was professed in 1302 and a member of the Chapter in 1338, and probably *armarius*, and some others through or by Richard of Bromwich and John of Dumbleton, both Oxford graduates and members of the Cathedral Chapter 1302-1340 or 1350. Some of these are autographs, and are written in a rough current hand, not the common charter writing, but one which has the appearance of a hand trained in the monastic school, but transformed by the necessity of writing quickly.

The books of the mediæval library are not in any sense fancy productions. There are no illuminations, and only an occasional good initial or border is introduced to relieve the dull usefulness. They are essentially books made to be read and to last. The ornate and beautiful books of hours and mass books which were made for the rich and the pleasure of the devout never seem to have found much place among the Worcester Benedictines, and those that did have all disappeared. The writing is always in black with occasional rubrics, and the initials always in red and blue with scarcely any gold. Green is used in the earlier MSS., but not in the later, though the severe simplicity of the latter is sometimes softened by curious designs in penwork filling in and proceeding from the initials, and often the writing of first words is purposely fanciful. Only in a few of the more elaborate are figures of what may be called the combination animals which defy natural history, and which the illuminator often appears to have invented at the moment to suit the exigencies of the vellum or the space to be occupied.

Half the books or more were rebound and catalogued in the fifteenth century. This may be determined by the lettering of the labels on the back covers. Some were rebound before then, as is shown by the following priory accounts taken from a roll of the time of Richard II.:[b]

> In iii pellibus ovinis pro bibliis in claustro iiiid.
> It. succentori pro ligatura magni libri in choro. xxd.

About 155 old bindings, mostly of the fifteenth century or earlier, remain on the books in various stages of decay. Some few have scarcely felt the effects of

[a] *Sic.* The Latin is difficult and the text probably corrupt. Liber Pensionum, f. 31, A.D. 1314-15. Hist. MSS. Comm. Rep. 1895. Transcription by Mr. R. L. Poole.

[b] From Noake's *Monastery and Cathedral of Worcester.*

time, and others have but a small portion of rotten and worm-eaten board remaining. Some again, of which the binding had entirely gone, have been carefully rebound within the last few years in pig or calf skin, and many others are badly in need of the same treatment.

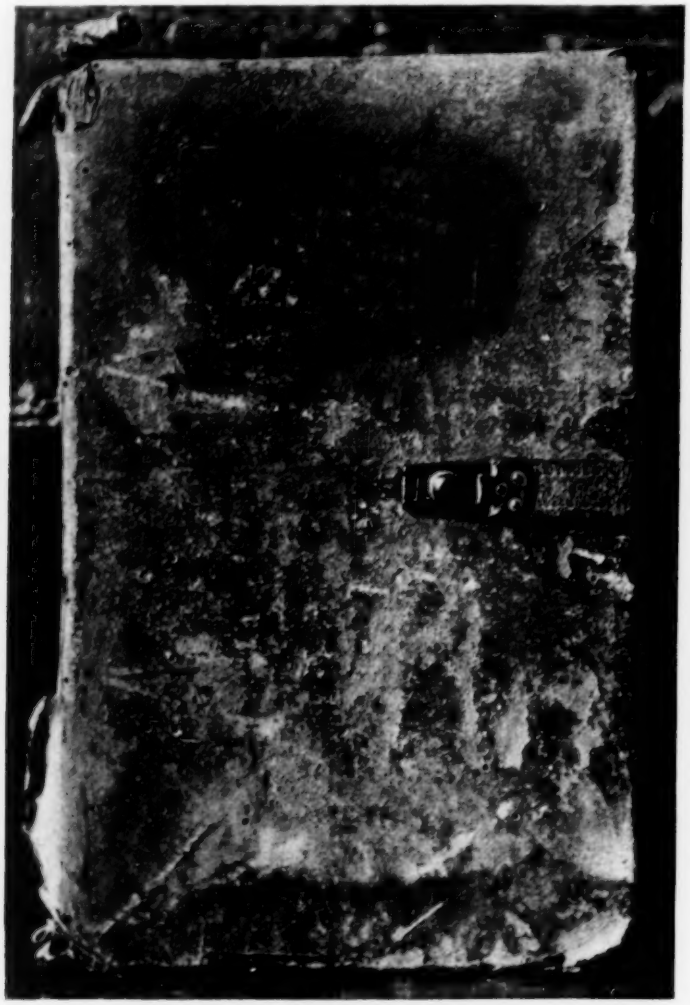


Fig. 2. A typical binding in the Worcester Cathedral Library.

The typical Worcester book is worth describing. (Fig. 2.) It is essentially a home production. The sheep of the farms provided the cover, the oak trees

furnished the boards. The quires of vellum are sewn with hemp on to ligatures of hide, the ends of which are taken down through holes in the oak boards, brought up again an inch further on and finished in a neat knot. The ligature is let into the board on both sides so as to provide a smooth surface for the covering skin. A stiffening of plaited hemp is also worked on the upper and lower edges of the back. The whole is then covered with white sheepskin. A strap is riveted with an iron stud on to one front edge of the cover, carrying a brass clasp, which fits on to an iron pin set in a small brass plate about the middle of the reverse cover. Some of these clasps are preserved and are often chased with some care. A vellum label is then stuck outside the last cover with the title of the book. This is the usual type, of which of course there are many small variations. The whole production is most workmanlike and durable, as is proved by the fact that some of these bindings are still supple and in good order after four or five hundred years of wear, dust, neglect, and other destructive influences.

Of the fifteenth-century books few are of special interest. There is less of the formal monastic hand and more of the books for the Oxford schools, some being no more than lecture note-books. A few of this century are on paper instead of vellum, and some are bound in stamped leather bindings.

The language of the library as it is now is almost entirely Latin. The few Anglo-Saxon books were taken away, and most of them came into the hands of Archbishop Parker. No English MSS. remain but two or three glosses on the Psalms, two copies of Richard Rolle of Hampole, and a Wickliffe's New Testament arranged for lections according to the Sarum Kalendar, about 1450, finely illuminated. A few MSS. contain leaves or portions in French (Fol. 157, Q° 61, etc.), but Latin is the language almost universally used. Aristotle, Eusebius, Origen, and such other Greek writers were only known through a Latin medium.

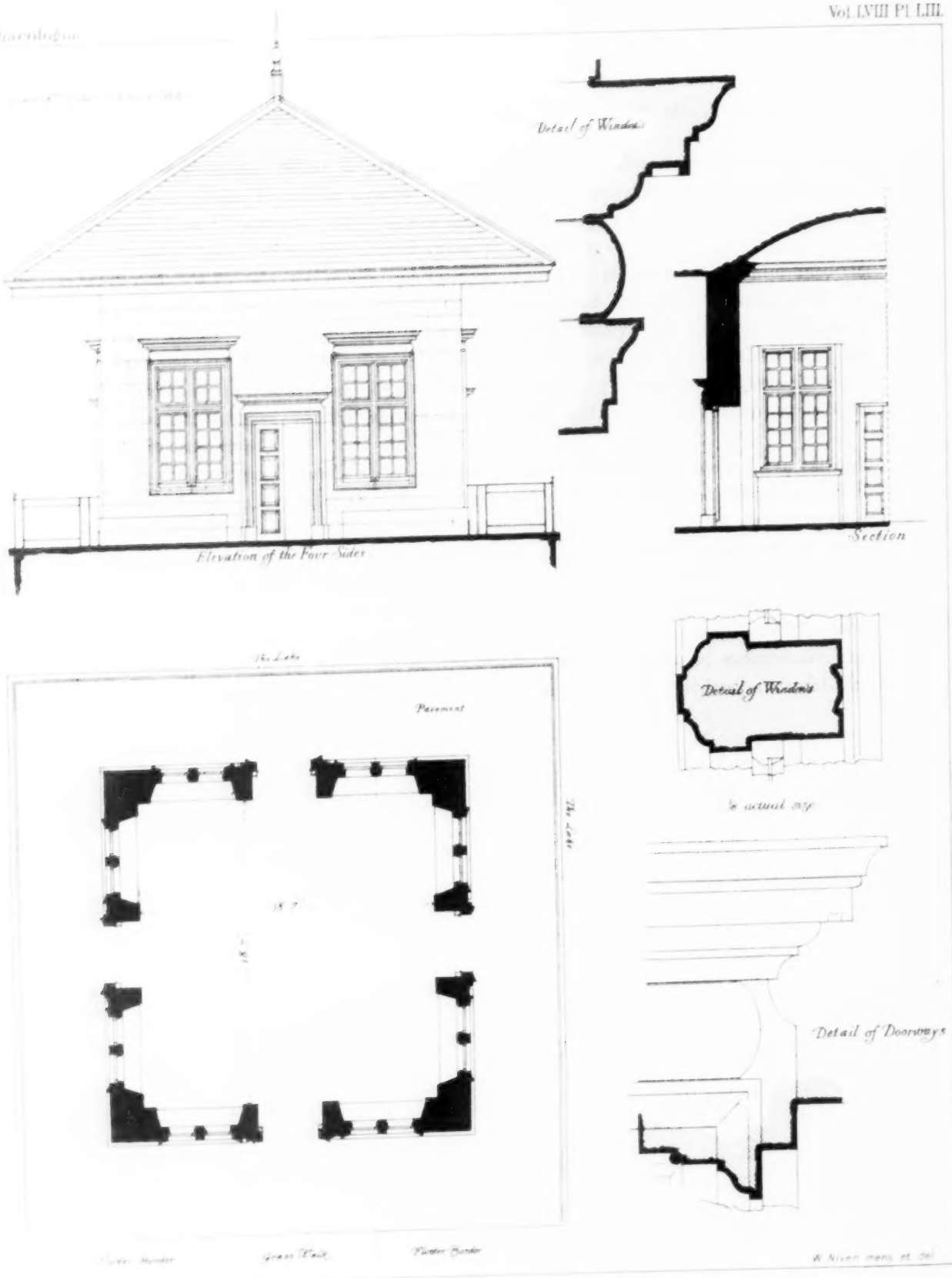
Commentaries on Peter Lombard's Sentences occupy many volumes. The philosophy of the schools, canon and civil law, the Fathers, and medicine are the chief subjects, and there are a good number of devotional books, such as glosses on the Psalms, the writings of St. Bernard of Clairvaux, and others, and treatises such as *De oculo morali* and those embodied under the name of *Speculo*.

An expected liberality of mind is displayed in the collection, as the works of Averröes, who was represented by Orgagna in paintings in the Campo Santo at Pisa as being in Hell with Mahomet and Antichrist, are included. Possibly, however, these were "edited" to make them orthodox, as a very early Arian Commentary on St. Matthew was (Q 55), and passed under the name of

St. Chrysostom. What is perhaps more remarkable, almost contemporary copies of some of the Wycliffite writers, such as Repington and Alington, were brought back from Oxford and added to the monastic library. It is not certain, however, if any of these latter were controversial in character.

It would take too much time in a paper such as the present to enter into the question of how the books became dispersed at and after the dissolution of the monasteries. Modern research is discovering that many more vestiges of monastic libraries remain than was formerly supposed. So far as the internal value of the books goes, perhaps, when they are found, they bring a feeling of disappointment, attributable more to the narrowness of the field of inquiry than to lack of intellectual power.

The printing press has in fact perpetuated those which were most valuable as literature. A great many which were real works of art are still preserved in museums and private collections, and extensive and little explored depositories of more commonplace material exist in many of the public libraries and in their original homes in the cathedrals, which serve not only to provide matter for the historian and student, but which give an insight, as no other memorial of the past could do, into the literary attainments and methods of thought of the more educated section of mediæval communities, which in spite of reformation and revolution have proved to be the cradle of so much modern thought and discovery.



THE GARDEN-HOUSE, BECKETT HOUSE, SHRIVENHAM

APPENDIX.

The Garden-house at Beckett, Shrivenham, Berks.

12th December, 1901.—W. Niven, Esq., F.S.A., communicated the following Notes on the Garden-house at Beckett, Shrivenham:

In the interesting paper "On the Progress of Gardening," by Mr. Daines Barrington, read 13th June, 1782, and printed in vol. vii. of *Archæologia*, he describes the garden-house at Beckett Park, the seat of his family, which has been variously called Summer-house, Fishing-house, and Banqueting-house, and his paper was illustrated by a small-scale plan and elevation of this building. He claimed interest for it on account of its being probably the first of such garden buildings, or, as he says, "expensive buildings in gardens," and because he believed it both by tradition and internal proofs to be a work of Inigo Jones. By way of supplement to his paper I venture to send the following notes from my own examination of the building, together with measured drawings of it (Plate LIII.) and photographs, which perhaps the Society may think worth adding to the Berkshire portfolio.

First, a few words in addition to Mr. Barrington's description. One is struck by the remarkably good preservation of the building, the excellence of the work, and (in measuring it) the precision with which it was set out. It is of two storeys, the lower being reached both from the garden and, by boat, from the lake, arched openings on the east side forming a convenient landing place as well as a place for keeping boating gear. This lower storey may of course have been intended for cellarage as Mr. Barrington says, but no doubt its main purpose was to carry the upper storey of which the floor coincided in level with a raised terrace which it terminated. Its position was perhaps novel, but the two-storied garden-house in connection with a terrace was by no means a novelty. The walls of the upper building are inside and out of freestone, and slabs of white marble take the place of window boards. Writing in 1782 Mr. Barrington says: "This banqueting-house is now in exactly the same plight as it was 150 years ago if the gilding of the window frames is excepted and the removal of a parapet wall" (probably a stone

balustrade) round three sides of the covered way. It has probably suffered no deterioration since that remark was made. No doubt this is largely due to the widely-projecting eaves, while the surrounding pavement saved it from the fatal embraces of ivy. Mr. Barrington thus puts the date of the building at about 1632, whether from actual knowledge or family tradition is not clear. Somewhere between this date and 1640 is where I should myself, judging by the work, have placed it, but there is of course a danger in estimating the date of Jones's work by the common standard. It is unfortunate that the writer did not ascertain and tell us the name of its builder. Sir William Essex, of Beckett, according to Lysons[1] sold the estate in 1621 to Roger Glover, Esquire, who in 1632 sold it to Sir Henry Marten, judge-advocate, who made a large fortune from the practice of his profession, and would seem the most likely of the three proprietors to have erected this building.

The claim that this was the earliest of such garden buildings of a substantial kind is hardly tenable. The two-storied garden-house dated from Tudor times. Logan's views, which show the gardens of the colleges at Oxford and Cambridge, indicate this. At Place House, Tenterden, are octagonal buildings of two storeys at either end of a raised terrace, which date from about the middle of the sixteenth century. At Melford Hall, Suffolk, is a great octagonal garden-house of two storeys, with eight gables and many pinnacles, pierced with (formerly) mullioned and transomed windows, a far more ambitious building than this, and an older one. The Parliamentary survey of the manor of Wimbledon taken in 1649 and printed in vol. x. of the *Archæologia* describes in great detail some elaborate garden buildings, "garden, summer, or shadow-houses," a "banqueting-house" of two storeys, another of wood . . . "wainscotted round from the bottom to the roof" . . . "having 16 windows or covers of the same wainscot to open or shut at pleasure," etc. Wimbledon House was rebuilt by Sir Thomas Cecil in 1588, and probably the garden buildings were not much subsequent to this. The survey of Theobalds includes amongst other garden buildings "a summer or shaddow house standing in the middle of the garden, seated round and built turratt fashion and covered with slatt." Changing fashion and the landscape gardener must have destroyed many of such pleasant garden fancies since Mr. Barrington's day. But what might fairly have been claimed for this Beckett building was that it showed a great advance in style when compared with its predecessors.

Mr. Daines Barrington was no doubt right in attributing this building to

[1] *Magna Britannia, Berks.*

THE GARDEN-HOUSE, BECKETT HOUSE, SHRIVENHAM.

Published by the Society of Antiquaries of London, 1902.

CHEEK PIECE OF A ROMAN HELMET FOUND NEAR SOUTH COLLINGHAM, NOTTS. $(\frac{1}{1})$

Published by the Society of Antiquaries of London, 1903.

Inigo Jones. As is the case with nearly all except his largest public works there seems no actual documentary proof of his employment here; but there is a good deal of evidence. Coleshill, which since the eighteenth century has been attributed to him, and which surely could not have been the work of any one else, is only about three miles distant. Ashdown, a seat of the Craven family, known to be by Webb, Jones's pupil and relative, is only five or six miles away. The tradition in the family connecting the name of this architect with the summer-house is also evidence; but what is strange is that this writer makes no reference to the mansion itself at Beckett. In the library there is preserved a drawing of the old house, the present mansion dating only from some forty or fifty years ago. This drawing shows rather a shapeless general form with a monotonous repetition of windows closely resembling those of this garden-house, so closely as to suggest that both were by the same architect. The general design of this old house, if it could be said to have any, does not suggest Jones as its author, but it might well have been that he was employed to improve an existing building.

Since my drawing and notes were made this very charming little building has lately been illustrated, both in Messrs. Belcher and Macartney's *Later Renaissance Architecture in England*, and also in Messrs. Triggs and Tanner's *Some Works of Inigo Jones*. In both it is claimed as a work of his, but no evidence is given towards proving it to be so. By permission of the publisher, Mr. B. T. Batsford, the former illustration is reproduced in Plate LIV. from the original photograph.

Cheek-piece of a Roman Helmet.

12th February, 1903.—T. Cecil Woolley, Esq., exhibited a cheek-piece of a Roman helmet in embossed copper, found during excavations on the site of the Roman fort of *Crocolana*, near South Collingham, Notts.

The cheek-piece, which is represented full size in Plate LV., bears the figure of a woman standing by a horse, the bridle of which she holds with her left hand, while the other grasps a rope (?). Another rope seems to be disposed in the background as if to form a panel enclosing the figures.

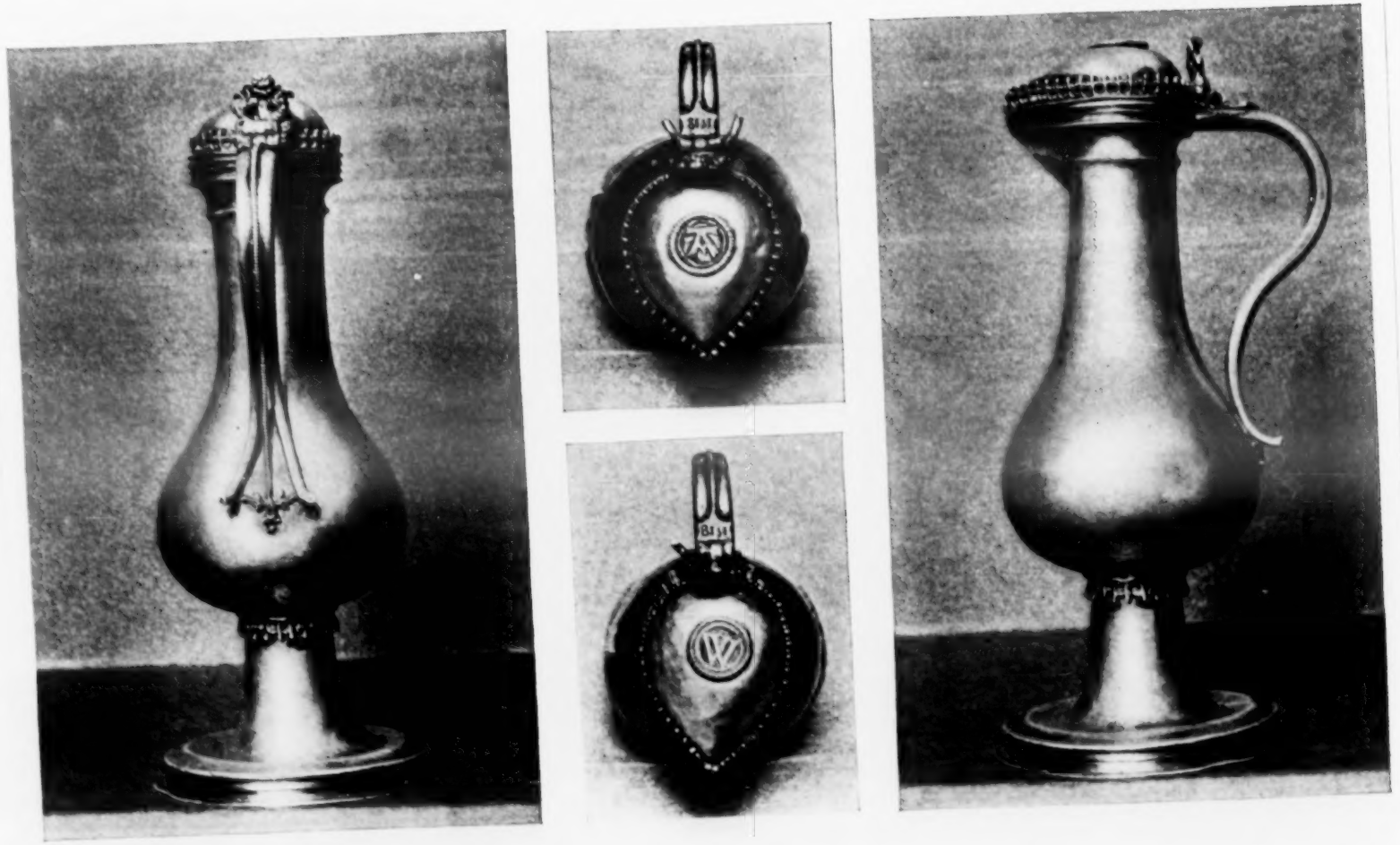
A pair of Silver Parcel-gilt Altar Cruets.

2nd April, 1903.—Max Rosenheim, Esq., F.S.A., exhibited a pair of silver parcel-gilt altar cruets. (Plate LVI.)

These interesting vessels are $6\frac{1}{2}$ inches high and identical in form in every way. Each has a long pear-shaped body, set upon a spreading foot, with handles made of two conjoined tubes, and kite-shaped lids. The lids are surrounded by gilded crestings by way of border, and furnished with thumb-pieces, also gilded, in form of a flower and leaves; on the hinges is engraved the date 1518. Each lid has also on top a small gilt medallion, with a beaded edge, enclosing, on a ground formerly enamelled, in the one case the letter W for *Vinum*, and in the other A for *Aqua*. The use of W for V is not unfrequent in German examples. The tubes forming the handles are conjoined for most of their length and have the joint covered by a beaded stalk, gilded. Near the bottom the tubes diverge and are slightly turned outwards, while the stalk continues and ends in a gilded leaf which is attached to the body of the cruet. The junction of body and foot is covered by a gilded cresting like that on the lids, but reversed. The edge of the foot is slightly moulded and gilded.

Under the foot are two hall-marks: (1) an eagle displayed, for the city of Lubeck; (2) the maker's mark, a star and another uncertain object.

The cruets were bought at Utrecht, but have apparently no other history.



A PAIR OF SILVER PARCEL-GILT ALTAR CRUETS MADE AT LUEBECK AND DATED 1518.

INDEX.

A.

Aah-hetep, Queen, pectoral of, 248
Abbas, Ali ibn el, works of, in Worcester library, 564
Abingdon, Earl of, *see* Bertie, James
Ablutions, monastic, 438
Abrou, Hafiz, 219
Adana, gold encolpion from, with representation of the healing of the Demoniac, 435
Æthelfleda, 314, 315
Afghanistan, inlaid gold reliquary from, 237, 261, 262
"Age," explanation of the term, 308
Alan the Painter, lay brother of St. Albans, 280, 290
Alan, prior of the Order of St. John of Jerusalem, afterwards bishop of Bangor, 385, 388
Albini, William de, earl of Chichester, 233
Alcobaça (Portugal), cloister lavatory at, 442
Alcuin bible, figures in, 430, 431, 433
Aldrevandini, name of a glass maker or painter, 225, 226
Aleppo, enamelled glass goblet from, 217
Alfred, King, books written for, 563
Alington, works of, in Worcester library, 570
Altar cruets, silver gilt, 574
Altringham, Richard, 343, 344
Ambresbure, Geoffrey de, goldsmith, will of, 193
Animal remains, from Arbor Low (Derbysh.), 468, 470, 472, 496; Caerwent (Mon.), 133, 135, 140, 399; Durham, well in cloister, 455; Silchester (Hants.), 19, 423; Stonehenge, 71
Anketil, monk of St. Albans, 278
Annunciation, the, wall painting of, in St. Albans Abbey, 284
Antonia, wife of the Emperor Claudius, coin of from Stonehenge, 51, 72, 94
Antonia, wife of Drusus, 552
Arabian school of medicine, books of, in Worcester library, 564
Arbor Low (Derbyshire), excavations at, 1901-1902, H. St. George Gray on, 461; animal remains from, 468, 470, 472, 496; classification of, 461; description of site, 462; description of photographic views, 488; description of stones, 492; explanation of plan and diagrams of, 496; excavations in the fosse, 468, through the vallum, 477, in the small dyke connected with the vallum, 482; flint and stone implements from, 469, 471, 472, 475, 477, 479, 480, 482, 483, 484, 485, 497; human remains from, 466, 480, 481, 490, 496; list of finds, 496; model of, 498; pottery from, 466, 479, 480, 496; report on human skeleton from, 490; summary, 484; trenching near stones, 478; tumulus on vallum, excavation of, 466
Architectural remains, medieval, from lavatory in cloister of Durham Abbey, 445; from well in cloister of Durham Abbey, 455; Roman, from Caerwent (Mon.), 122, 123, 125, 142, 145, 146, 148, 150, 402, 403, Silchester (Hants.), 29, 422
Ardeshir, King of Sassania, 266
Armlet, inlaid gold, from the Oxus, 237, 244, 249, 252
Arms and armour: cheek-piece of Roman helmet from South Collingham (Notts.), 573; sword hilt, inlaid ivory, from Hallstatt (Austria), 248
Arnold, John, notary, 346

Arrow-head, flint, from Arbor Low (Derbysh.), 471, 472, 475, 497
"Arthur's Round Table" (Cumb.), stone circle of, 462
Arundel (Sussex), castle of, 320, 331, 332
Arundel, Countess of, 173
Ashby, T., jun., M.A., F.S.A., Hudd, A. E., F.S.A., and Martin, A. T., M.A., F.S.A., on excavations at Caerwent (Mon.), in 1901, 119; in 1902, 391
Ashcombe, Robert, 194
Ashdown House (Berks.), 573
Avebury (Wilts.), stone circle at, 461
Averröes, works of, in Worcester library, 569
Avianius, C., 552
Axes, bronze, from Beyrût (Syria), 13, Ecbmin (Egypt), 14, Esh-Shajara (Palestine), 14, Forman Collection, 1, 14, Hallstatt (Austria), 11, Hamadan (Persia), 9, Kertch (Black Sea), 12, Khinaman (Persia), 10, Siberia, 11, Sidon (Palestine), 13, Silchester (Hants.), 422, Van (Armenia), 8, Vaphio (Laconica), 14; iron, from Silchester (Hants.), 32; stone, from Silchester (Hant), 423, Stonehenge, 51, 53, 55, 58, 94, 95, 96, 97, 98, 100, 101, 103, 104
Ayere, Thomas, 448, 450, 451; accounts of, for erection of lavatory at Durham Abbey, 458
Ayres, Captain, 169

B.

Baia, Tempio di Mercurio at, 514
Bakechild, Thurstan de, grant of land to, 390
Baldwin, sacrist of St. Albans, 275, 278
Baloue, John, 236
Bamme, Adam, 194, 195; Henry, 195
Bannier, Baron de, 187; General John, 187
Bannockburn, battle of, 321
Bar, iron, from Stonehenge, 91
Barnaby, John, painter, 287
Barnersbury, manor of, 296
Barwick-in-Elmet (Yorks.), moated mound at, 333
Basilewsky Collection, St. Petersburg, ivory pyx in, 430, 435; ivory tau cross head in, 408
Basset, game of, 155
Batalha (Portugal), cloister lavatory at, 442
Bateman Collection, urns from, 467
Bath, the use of, in monastic houses, 438
Bauli, Bay of Naples, submerged region of, 549
Bavaria, bronze dagger from, 3
Beaker, glass enamelled, in British Museum, 225
Beauchamp, Robert de, prior of Harmondsworth, 342, 343
Beaune (France), bronze blade from, 4
Beckett, Shrivenham (Berks.), the garden-house at, notes on, by W. Niven, F.S.A., 571
Beleknap, Robert, 232
Bell, bronze, from Silchester (Hants.), 422
Benet, John, 236
Bennet, Charles, Lord Ossulston, 174
Berkeley (Glouc.), castle of, 326
Berkeley, Lady Henrietta, 174; Mary, 174; Lord, 174
Berlin, Royal Museum, ivory plaque in, 432, 433
Berners, Sir James, 296
Berry, Sir John, 169
Bertie, James, earl of Abingdon, 167; Robert, earl of Lindsey, 184
Beynton, Nicholas, 236
Beyrût (Syria), bronze axes from, 13
Bharût, sculptures from, 264
Bickerstaff (Lanc.), grant of lands in, 390
Bird bones from Silchester (Hants.), 20, 424
Bit, iron, from Caerwent (Mon.), 403
Blade, bronze, from Beaune (France), 4; Kimberley (Norfolk), 3; Plougescant (France), 5
Blagge, Margaret, 187; Thomas, 187
Bleasdale (Lanc.), Bronze Age ditch at, 473
Blisland (Cornwall), stone circle at, 461
Bodleian library, ivory book-cover in, 431; manuscript from Worcester in, 564

Bokyngham, John, prior of Sheen, 347
Boleyn, Sir Geoffrey, 206; Sir William, 206
Bone objects: pin, from Arbor Low (Derbysh.), 466; various, from Silchester (Hants.), 423
Book-cover, inlaid gold, at Limburg-on-the-Lahn, 272, Monza, 271; ivory, in the Bodleian Library, 431; Victoria and Albert Museum, 431; representing the healing of the Demoniac, 435
Botelesham, William de, bishop of Rochester, 342
Boubers, arms of, 346
Bouke, John, 235
Box, gold, from Manikyala (Punjab), 262
Bramber (Sussex), castle of, 334
Brampton, William de, rector of St. Michael Wood Street, London, 193
Brass objects: pin from Stonehenge, 93
Brecon (Wales), Roman remains at, 395
Breslau, cup of enamelled glass in museum at, 221
Breye, Nicholas, 234
Bright, Robert, 194
British Museum: Alcuin bible in, 430, 431, 433; bronze objects in, 6, 9, 12; enamelled glass goblets in, 217, 221, 222, 223, 225; inlaid gold ornaments in, 237, 239, 254; ivory objects in, 412, 429, 432; sculpture from Gandhâra in, 263; stone implements in, 485, 486
Brocas, Benedict, 206
Brogar, Ring of (Orkney), stone circle of, 462
Brokes, William, 236
Bromley, Mrs., 172
Bromwich, Richard of, 567
Bronze objects: axe, from Beyrût (Syria), 13, Echmin (Egypt), 14, Esh-Shajara (Palestine, 14, Forman Collection, 1, 14, Hallstatt (Austria), 11, Hamadan (Persia), 9, Kertch (Black Sea), 12, Khinaman (Persia), 10, Siberia, 11, Sidon (Palestine), 13, Silchester (Hants.), 422, Van (Armenia), 8, Vaphio (Laconica), 14; bell, from Silchester, 422; blade, from Beaune (France), 4, Kimberley (Norfolk), 3, Plougescant (France), 5; brooch, from Silchester, 422; dagger, from Bavaria, 3, Hallstatt, 1; knife, from Colophon (Ionia), 5, Egypt, 8, Ialysos (Rhodes), 6, Nauplia (Greece), 7, Naxos (Greece), 6, Vaphio, 6; needle, from Silchester, 422; pick, from Siberia, 11; pin, from Silchester, 422; plaque, from Caerwent (Mon.), 128; spoon, from Caerwent, 125; stool, model of, from Caerwent, 143; vase, from Caerwent, 405; weapons and implements, some rare forms of, Rev. W. Greenwell, D.C.L., F.R.S., F.S.A., on, 1; weights from Nimrûd, 12
Brooch, bronze, from Silchester (Hants.), 422; inlaid gold, from Petrossa, 241, the Rhine, 239
Brougham Castle (Westmorland), E. T. Whyte, M.A., F.S.A., on, 359; chapel of, 368, 370; courtyard, plan of buildings in, 371; the keep, 375, east elevation of, 376, oratory in, 380, plan of third floor of, 379, windows of, 377; outer defences of, 363; owners of, 362; postern tower, plan of, 367; site, plan of, 361; tower and gatehouse, plans of, 364, 373, 374
Broun, John, will of, 196, 206, 210
Brown, Rev. W. Haig, master of the Charterhouse, 294
Brownell, Robert, notarial mark of, 216
Broxbourne (Herts.), grant of the church of, 383, 390
Bruges, Robert de, 387
Buckenham, New (Norfolk), castle of, 333
Buckenham, Old (Norfolk), castle and priory of, 333
Bucket, pewter, from Silchester (Hants.), 32; wood, from Caerwent (Mon.), 399, Durham, 455; Silchester, 423
Buckle, inlaid gold, from Spain, 239
Butillier, Robert le, 232

C.

Caen, Paul of, abbot of St. Albans, 276, 277 278

Caerwent (Mon.), excavations at, on the site of the Romano-British city of Venta Silurum, in 1901, T. Ashby, jun., M.A., F.S.A., A. E. Hudd, F.S.A., and A. T. Martin, M.A., F.S.A., on, 119; in 1902, 391; animal remains from, 133, 135, 140, 399; architectural remains from, 122, 123, 125, 142, 145, 146, 148, 150, 402, 403; baths at, 134, 399; Block A., description of, 151; bronze objects from, 125, 128, 129, 143, 405; coins, hoard of, from, 402; head, sandstone, from, 148; House No. 2, description of, 121, No. 4, 392, No. 5, 393, No. 6, 400, No. 7, 138, No. 8, 147, No. 9, 404; human remains from, 133, 151, 405; iron objects from, 135, 396, 403, 405; leaden objects from, 403; millstones from, 123, 132; money jar from, 150; mosaic pavements from, 123, 124, 126, 127, 130, 140, 393, 401, 402; pits at, 133, 134, 139, 144, 150, 151, 398, 399; pottery from, 129, 131, 132, 133, 146, 150, 151, 399, 402, 403; plan showing discoveries to 1901, 152, to 1903, 406; supposed shrine at, 149; wall plaster from, 123, 125, 127, 129, 130, 132, 133, 135, 136, 137, 141, 142, 143, 145, 393, 399, 400, 402; wells at, 133, 398; wooden objects from, 399

Cairo, manufacture of glass at, 218

Cambridge, castle of, 314; Corpus Christi College, Anglo-Saxon books in library of, 563, 564

Campeden, John de, archdeacon of Surrey, 234; seal of, 235

Campes, Adam of, abbot of St. John's, Colchester, 278

Candlestick, iron, from Silchester (Hants.), 422

Canfield, Great (Essex), moated mound at, 333

Canterbury, Christ Church, cloister lavatories at, 442, 455; shrine of St. Thomas at, 279 water supply of, 297, 453

Carafa, Donna Anna, palace of, 540

Caraucius, coin of, 423

Cardiff Castle (Wales), 321

Carisbrooke castle (Isle of Wight), 313, 332

Carleton, Thomas, 194

Carlisle (Cumb.), castle of, 363

Carpenter, John, common clerk of London, 206 treasurer of the abbey of St. Valery, 346

Castle Acre (Norfolk), moated mound at, 333

Castles of the Conquest, J. H. Round, M.A. on, 313

Catthorpe, Ranulf de, 566

Cecil, Sir Thomas, 572

Cella, John de, abbot of St. Albans, 279, 280, 281, 284

Celt, stone, from Arbor Low (Derbysh.), 485

Charles II., king, some familiar letters of, addressed to his daughter the Countess of Litchfield, Viscount Dillon, President, on, 153; signet of, 157

Chartres, enamelled glass goblet in museum at, 220

Cheek-piece of Roman helmet from South Collingham (Notts.), 573

Chelreye, Edmund de, 232

Chester, castle of, 315

Childeric I., ornaments from tomb of, 239; sword of, 271

Chosroes I., dish of, 269

Churchill, Arabella, 188; Lady Henrietta, 187; John, duke of Marlborough, 187; Sir Winstan, 187

Cissbury (Sussex), flint implements from, 63, 64, 65

Clarendon, Countess of, 173; Earl of, 180

Clavering (Essex), castle of, 328; manor of, 328

Clementinus, name of, on inscribed tile, 31

Clerkenwell, nunnery of, water supply of, 297; priory of St. John of Jerusalem, water supply of, 297

Cleveland, Duchess of, *see* Villiers, Barbara

Clifford, arms of, 365
Clifford, Roger de, 363, 364, 365, 368, 372, 380
Coffin, stone, from St. Michael Wood Street, London, 201
Coins: denier struck by the bishops of Constance, 410; from Afghanistan, 261, 262, Caerwent (Mon.), 402, Oxus river, 244, Silchester (Hants.), 32, 423, Stonehenge, 49, 51, 72, 90, 91, 94, 96, 100
Colchester (Essex), castle of, 328
Colchester, Walter of, sacrist of St. Albans, 275, 278, 279, 280; paintings by, 279, 282
Coleshill House (Berks.), 573
Collingham, South (Notts.), cheek-piece of Roman helmet from, 573
Colophon (Ionia), bronze knife, silver pin, and glass pendant from, 5
Commodus, coin of, from Stonehenge, 49, 72, 90
Condray, Edward, 234
Constance, bishops of, denier struck by, 410
Constantine VII., Emperor, 272
Cooper, Thomas, bishop of Winchester, arms of, 229; seals of, 229
Copper objects: cheek-piece of Roman helmet, 573
Corfe Castle (Dorset), 320, 330, 331
Corfe Mullen (Dorset), 330, 331
Cotton, John, painter, 287
Crimp, game of, 155, 180
Crocolana, see Collingham, South (Notts.)
Crown, inlaid gold, from the Novotcherkask treasure, 256; of Svinthila, king of the Visigoths, 241
Crucifixion, the, on an ivory tau cross head, 407; wall paintings of, in St. Albans Abbey, 282, 283, 284
Cruets, altar, silver gilt, 574
Cup, glass enamelled, in Breslau Museum, 221; British Museum, 221
Curraunt, Joan, 195; John, 194, will of, 195; William, 195

D.

Dacres, Lord, 184
Dagger, bronze, from Bavaria, 3; Hallstatt (Austria), 1
Dalton, O. M., M.A., F.S.A., on some points in the history of inlaid jewellery, 237; on a carved ivory pyx in the British Museum, 429
Daniel, Peter, sheriff of London, 182
Dashur (Egypt), inlaid gold jewellery from, 238
Dashwood, Samuel, sheriff of London, 182
Deacon, Henry, 207
Deer's horn, pick of, from Horningsea (Cambs.), 469, Stonehenge, 72, 104; splinters of, from Arbor Low (Derbysh.), 468, 472, 496, Grimes Graves, 469; Stonehenge, 49, 53, 71, 91, 92, 94, 98, Wor Barrow, Handley Down (Dorset), 469
Delaval, Lady Elizabeth, 173; Sir Ralph, 173; Robert, 173
Demoniac, healing of the, in early Christian art, 435; on an ivory pyx, 429
Denier struck by bishops of Constance, 410
Denmark, Prince George of, 178
Derham, Elias of, canon of Salisbury, 279
Dillon, Viscount, President, on some familiar letters of Charles II. and James, Duke of York, addressed to their daughter and niece, the Countess of Litchfield, 153
Dish, pewter, from Silchester (Hants.), 32
Douai (France), enamelled glass goblet in museum at, 220
Dover (Kent), castle of, 331, 333
Downton (Wilts.), bishopric estate of, 228
Dragonara, Grotta, Bay of Naples, rock-hewn chambers near, 555
Drake, Sir William, 187
Dresden, Green Vaults, enamelled glass goblet in, 220
Dumbleton, John of, 567

Durham, recent discoveries in the cloister of the abbey of, W. H. St. John Hope, M.A., and Canon J. T. Fowler, D.C.L., F.S.A., on, 437; cloister lavatory, 443, 447, accounts for building of, 458, excavation of, 444; well in cloister, 453, objects from, 455; early *Legenda Sanctorum* from Worcester in library of, 564
Durham, Walter of, 285

E.

Echmin (Egypt), bronze axe from, 14
Edenhall, The Luck of, enamelled glass goblet known as, 220
Eggleston (Durham), quarry at, 448
Egypt, bronze knife from, 8
El Bersheh (Egypt), 74
Ely, Solomon of, 278
Enamelled objects: glass beaker in the British Museum, 225; glass cup in Breslau Museum, 221, British Museum, 221; glass goblet in British Museum, 217, 222, 223, Chartres Museum, 220, Douai Museum, 220, Dresden, Green Vaults, 220, Löwenburg near Cassel, 220, Luck of Edenhall, 220, Saracenic, of medieval date, C. H. Read, Secretary, on, 217
Encolpion, gold, from Adana, 435
Eppewell, John de, rector of St. Michael, Wood Street, London, 193
Esh-Shajara (Palestine), bronze axes from, 14
Essex, Sir William, 572
Evelyn, Sir John, 230
Eversolt, Gilbert of, sacrist of St. Albans, 275
Ewias Harold (Hereford), castle of, 319, 324, 325
Exeter (Devon), castle of, 338; sieges of, 335, 336, 337

F.

Feild, Richard, 206
Felton, Elizabeth, 163; Sir Thomas, 163
Feriby, John, 296, 302; Margery, 296, 302
Fethyrstonhalgh, John, 448
Fibula, *see* Brooch
Fireplaces at Silchester (Hants), 20, 26, 417
Fish bones, from Silchester (Hants.), 425
Fitzgerold, Robert, 331
Fitzharding, Robert, 326
Fitz Hugh, Robert, rector of St. Michael, Wood Street, London, 197
Fitz James, Henrietta, 188; Henry, 188; James, Duke of Berwick, 188
Fitz Osbern, William, 325, 333
Fitzroy, Anne, 184; Charlotte, Countess of Litchfield, familiar letters addressed to, by Charles II. and James, Duke of York, Viscount Dillon, President, on, 153; George, Duke of Northumberland, 184; Henry, Duke of Grafton, 163
Fitz Wimarc, Robert, 328
Flakes, flint, from Arbor Low (Derbysh.), 469, 470, 471, 472, 482, 483, 484, 497
Flint, *see* Stone implements
Florence of Worcester, chronicle of, 564
Floyer, Rev. J. K., M.A., F.S.A., on the medieval library of the Benedictine Priory of St. Mary, in Worcester Cathedral Church, 561
Fontenay (France), cloister lavatory at, 442
Forest, John, 235
Forman Collection, bronze axes from, 1, 14
Forster, John, goldsmith, 194, 195
Foster, Gilbert, mayor of Winchester, 234
Fouke, Henry, monk of Worcester, 566, 567
Fowler, Canon J. T., D.C.L., F.S.A., and Hope, W. H. St. John, M.A., on recent discoveries in the cloister of Durham Abbey, 437
Fox, Richard, bishop of Winchester, seals of, 229

Fromond, John, steward of Winchester College, 228, 234, 235
Fubbs yacht, origin of name, 175
Futa-mi-ga-ura (Japan), shrine at, 88

G.

Gaiola, Bay of Naples, channel of, 525; harbour of, 519; islands of, 523, 524, 529; submerged foreshore of, 517
Gaming-board, tile scored as, from Silchester (Hants.), 31
Gandhâra, sculptures from, 263, 265
Garden-house at Beckett, Shrivenham (Berks.), 571; Melford (Suffolk), 572; Place House, Tenterden (Kent), 572; Theobalds (Herts.), 572; Wimbledon (Surrey), 572
Garnier de Nablous, prior of the Hospital in England, and Grand Master of the Order of St. John of Jerusalem, J. H. Round, M.A., on, 383
Geoffrey, abbot of St. Albans, 278
George I., coin of, from Stonehenge, 51, 72, 94
George II., coin of, from Stonehenge, 72, 96
George III., coin of, from Stonehenge, 49, 72, 91
Gernon, Robert, 330
Gerveys, pedigree of, 235
Gerveys, Andrew, 233, seal of, 232; Cristina, 231; John, 235; Roger, 227, 228, 232, 235, seal of, 234; William, 231, 232; William, parson of Bentworth, 232, 233
Gibb Hill (Derbyshire), excavation of tumulus so-called, 466
Girdle-plate, inlaid gold, from Wolfsheim, near Mayence, 245, 265
Glass objects: enamelled beaker in British Museum, 225; enamelled cup in Breslau Museum, 221, British Museum, 221; enamelled goblet in British Museum, 217, 222, 223, Chartres Museum, 220, Douai Museum, 220, Dresden, Green Vaults, 220, Löwenburg near Cassel, 220, Luck of Edenhall, 220, Saracenic, of medieval
Glass objects—*continued.*
date, C. H. Read, Secretary, on, 217; fragment with Christian emblems from Silchester (Hants.), 32; pendant, from Colophon (Ionia), 6, Ialysos (Rhodes), 6, Mykenae, 6, Palamidi, 6, Spata, 6; vase, inscribed from Piombino, 550
Glass, painted, from St. Michael's Wood Street, London, 200; Watton Priory (Yorks.), 200
Gloucester frigate, wreck of, 169
Glover, Roger, 572
Goblet, glass enamelled, in British Museum, 217, 222, 223; Chartres Museum, 220; Douai Museum, 220; Dresden, Green Vaults, 220; Löwenburg near Cassel, 220; Luck of Edenhall, 220; Saracenic, of medieval date, C. H. Read, Secretary, on, 217
Godolphin, Francis, 187, 293, 294; Sir Francis, 186; Sidney, Earl of Godolphin, 186
Godwin the minister, ivory seal of, 412
Gold objects: box, from Manikyala (Punjab), 262; encolpion, from Adana, 435; inlaid jewellery, some points in the history of, O. M. Dalton, M.A., F.S.A., on, 237, armlet from the Oxus, 237, 244, 249, 252, book-cover from Limburg-on-the-Lahn, 272, Monza, 271, brooch from Petrossa, 241, the Rhine, 239, buckle from Spain, 239, crown from the Novotcherkask treasure, 256, of the Visigothic king Svinthila, 241, girdle-plate from Wolfsheim near Mayence, 245, 265, gorget from Petrossa, 268, jewellery in the British Museum, 237, *naos*, from Dashur (Egypt), 238, ornaments from Petrossa, 267, 268, 269 Taman Peninsula, 259, Western Siberia, 252, plaque from the Oxus, 254, Siberia, 255, reliquary from Afghanistan, 237, 261, 262, "soul" from Dashur (Egypt), 238, vessels from Petrossa, 268
Gold, Sir Thomas, 176
Goolde, John, 236
Gorget, inlaid gold, from Petrossa, 268

Gospatric, son of Orm, 362
Gowland, William, F.S.A., on recent excavations at Stonehenge, 37
Grafton, Duke of, *see* Fitzroy, Henry
Grafton, Temple (Warw.), grant of land in, 389
Gray, H. St. George, on the excavations at Arbor Low, 1901—1902, 461
Greenwell, Rev. William, D.C.L., F.R.S., F.S.A., on some rare forms of bronze weapons and implements, 1
Gresham, Sir John, lord mayor of London, vault of, 203; Sir Richard, 204; Sir Thomas, 204
Grey, Forde, Lord Grey of Werke, 174
Griffin, Edward, 173; Sir Edward, 173
Grimes Graves, near Brandon (Norfolk), antlers from, 469; flint implements from, 63, 64, 65
Guarrazar, near Toledo, golden crown found at, 241
Gubion, Ralph, prior of Tynemouth, 278
Gunther, R. T., M.A., on the submerged Greek and Roman foreshore near Naples, 499

H.

Halleweford, Alice de, 206; Nicholas de, 206
Hallstatt (Austria), bronze axes from, 11; bronze dagger from, 1; inlaid ivory sword hilt from, 248
Hamadan, Persia, bronze axe from, 9
Hammerstones, flint and stone, from Stonehenge, 49, 51, 53, 55, 58, 62, 65, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105
Hampton-on-Thames (Middlesex), charters of, T. F. Kirby, M.A., F.S.A., on, 341, 345
Hamptone, John, 236
Harmondsworth (Middlesex), charters of, T. F. Kirby, M.A., F.S.A., on, 341, 347; computus roll of manor, 348
Harryes, John, 236
Harvey, Benjamin, monument of, 205; Hugh, 205; Robert, 205; William, monument of, 205
Hastings (Sussex), battle of, 321; castle of, 323, 334
Hatcher, Henry, 173
Hawksmoor, Nicholas, 190
Hay, Lady Mary, 169
Hayles (Glouc.), castle of, 326, 334
Haywode, Walter, 236
Head, sandstone, from Caerwent (Mon.), 148
Healing of the Demoniac, in early Christian art, 435; on an ivory pyx, 429
Hearths, at Silchester (Hants.), 17, 18, 29, 416, 420, 421
Heed, John, 195
Helmet, cheek-piece of Roman, 573
Helmsley (Yorks.), castle of, 363
Henry IV., great seal of, 229
Heraclius, The Patriach, 384
Heraldry:
Arms of Boubers, 346, Clifford, 365, Cooper, Thomas, bishop of Winchester, 229, Landtau, 226, St. Valery, abbey of, 346, St. William of York, 289, Spet, 226, Vaux, 365
Arms on an enamelled glass beaker, 225
Hereford castle, 275
Hertford priory, 280
Heston (Middlesex), charters of, T. F. Kirby, M.A., F.S.A., on, 341, 345
Hook, iron, from Silchester (Hants.), 32
Hookah, inlaid, from Yarkand, 257
Hoop, iron, from Silchester (Hants.), 32
Hope, W. H. St John, M.A., on excavations on the site of the Roman city at Silchester (Hants.), in 1901, 17; in 1902, 413; on the London Charterhouse and its old water supply, 293
Hope, W. H. St. John, M.A., and Fowler, Canon J. T., D.C.L., F.S.A., on recent discoveries in the cloister of Durham Abbey, 437
Hore, William, 207

Horncastle, Henry of, prior of Coldingham grave-cover of, 455
Horningsea (Cambs.), deer's horn pick from, 469
Hortensius, Quintus, villa of, 552
Hothfield, Lord, 363
Howard de Walden, Lord, Earl of Suffolk, 163
Hudd, A. E., F.S.A., Martin, A. T., M.A., F.S.A., and Ashby, T., jun., M.A., F.S.A., on excavations at Caerwent (Mon.), in 1901, 119; in 1902, 391
Human remains from Arbor Low (Derbysh.), 466, 480, 481, 490, 496; Caerwent (Mon.), 133, 151, 405; Gibb Hill (Derbysh.), 466
Hyde, James, 169; Laurence, earl of Rochester, 167
Hyndley, Thomas, 448

I.

Ialysos (Rhodes), bronze knife and glass objects from, 6
Ibrackan, Lord, 170
Ichene, Nicholas de, 231
Implements and weapons, bronze, some rare forms of, Rev. W. Greenwell, D.C.L., F.R.S., F.S.A., on, 1
Inchiquin, Earl of, 170
India Museum, South Kensington, inlaid hookah in, 257
Inlaid jewellery, some points in the history of, O. M. Dalton, M.A., F.S.A., on, 237
Inscriptions: in Sannazzaro's church at Mergellina, Bay of Naples, 539; on enamelled glass vessels, 223, 225; on vase from Piombino, 550; Roman, from the Posilipo tunnel, Naples, 545, Silchester (Hants.), 31, 422
Inventory of church goods of St. Michael Wood Street, London, 212
Iron objects: axe, from Silchester (Hants.), 32; bar, from Stonehenge, 91; bit, from Caerwent (Mon.), 403; candlestick, from Silchester, 422; hook, from Silchester 32; hoop of bucket, from Caerwent, 403, Silchester, 32; keys, from Silchester, 422; nails, from Stonehenge, 92, 93, 94; sheep clippers, from Caerwent, 403; spur, from Silchester, 423; staple, from Silchester, 32; T-bolts, from Caerwent, 135, 396; tyres, from Silchester, 32; various, from Caerwent, 405
Isaac, Mons, dancing master, 165
Isleworth (Middlesex), charters of, T. F. Kirby, M.A., F.S.A., on, 341, 345
Islington, water supply of the Charterhouse derived from, 296
Ive, John, rector of St. Michael Wood Street, London, 194, 195
Ivory objects: book-cover, in the Bodleian library, 431, Victoria and Albert Museum, 431, representing the healing of the Demoniac, 435; inlaid, from Hallstatt, 248, Nimrûd, 246, Veii, 248; panel, in the British Museum, 432; plaque, in the Royal Museum, Berlin, 432, 433; pyx, in the Basilewsky collection, 430, 435, in the British Museum, O. M. Dalton, M.A., F.S.A., on, 429; seal, of Godwin, 412; tau cross head, of English work of the eleventh century, C. H. Read, Secretary, on, 407, in the Basilewsky collection, 408, formerly in the Magniac collection, 408, 410, in Victoria and Albert Museum, 408, 409, 411, 412
Ixworth (Suffolk), vineyard at, 328

J.

James, Duke of York, *see* Stuart, James
James II., coin of, from Stonehenge, 51, 72, 94
Jelalabad (Afghanistan), inlaid gold reliquary from, 237, 261, 262

Jewellery, inlaid, some points in the history of O. M. Dalton, M.A., F.S.A., on, 237; armlet, from the Oxus, 237, 244, 249, 252; book-cover, from Limburg-on-the-Lahn, 272, Monza, 271; brooch, from Petrossa, 241, the Rhine, 239; buckle, from Spain, 239; crown, from Novotcherkask treasure, 256, of Visigothic King Svinthila, 241; girdle-plate, from Wolfsheim near Mayence, 245, 265; gorget, from Petrossa, 268; *naos*, from Dashur (Egypt), 238; ornaments, from Petrossa, 267, 268, 269, Taman Peninsula, 259, Western Siberia, 252; plaque, from the Oxus, 254, Siberia, 255; reliquary, from Afghanistan, 237, 261, 262; "soul," from Dashur (Egypt), 238; vessels from Petrossa, 268
John, abbot of Holy Trinity, Rouen, seal of, 345
Jones, Inigo, builder of garden-house at Beckett (Berks.), 573
Jonnalle, John de, prior of St. Valery, seal of, 346
Judd, Professor, J. W., F.R.S., note on the nature and origin of the rock fragments found in the excavations made at Stonehenge, 106
Jug, pewter, from Silchester (Hants.), 32
Jumièges, William of, 323
Justinian, commentary of, in Worcester library, 564

K.

Keroualle, Louise de, Duchess of Portsmouth, 171
Kertch (Black Sea), bronze axe from, 12; vase from, 254
Keswyk, Henry, 235
Ketene, John, 234
Keys, iron, from Silchester (Hants.), 422
Kha-em-uas, son of Ramses II., pectoral of, 248
Khinaman (Persia), bronze axe from, 10
Kilpeck (Hereford), castle of, 319, 320
Kimberley (Norfolk), bronze blade from, 3
Kimmeridge shale objects, various, from Silchester (Hants), 423
Kirby, T. F., M.A., F.S.A., on the charters of the manor of Ropley (Hants.), 227; on the charters of Harmondsworth, Isleworth, Heston, Twickenham, and Hampton-on-Thames, 341
Kirketone, Roger de, 232
Knife, bronze, from Colophon (Ionia), 5, Egypt, 8, Ialysos (Rhodes), 6, Nauplia (Greece), 7, Naxos (Greece), 6, Vaphio, 6; flint, from Arbor Low (Derbysh.), 483, 485, 496
Knyghth, Henry, 233
Knyvet, John, 232
Koft (Egypt), enamelled glass goblet from, 222
Kyrkeby, John, 236

L.

Lacy, Ilbert de, 333
Lambarde, William, 205
Lambert of Ardres, 321
Landtau family, arms of, 226
Lane, Thomas, 348
Laughton-en-le-Morthen (Yorks.), moated mound at, 333
Laurence, latoner of Newcastle, 449, 450
Lavatories, cloister, kinds of, 441; at Alcobaça (Portugal), 442; Batalha (Portugal), 442; Canterbury, Christ Church, 442, 445; Durham, 443, 447, accounts for, 458, excavation of, 444; Fontenay (France), 442; Lewes (Sussex), 456; Mellifont (Ireland), 442, 456; Peterborough, 442; Pontigny (France), 442; Thorone (France), 442; Veruela (Spain), 442; Wenlock (Salop), 442, 456
Layard, Sir Austen, 12
Leaden object: steelyard weight from Caerwent (Mon.), 403

Lee, Edward Henry, Lord Quarrendon, 160; Sir Edward Henry, Earl of Litchfield, 153; Eleanor, 167; Sir F. H., 184; Sir Henry, 167; James, 175
Leeds, Duke of, 170
Legge, Colonel, 180; Edward, 180
Leicester, castle of, 314
Lempster, Lord, 170
Lemyngtone, Thomas de, 231
Lennard, Thomas, Earl of Sussex, 184
Leslie, Lady Anne, 173
Letcombe, John, abbot of Hyde, 234
Levingstone, Sir James, 173
Lewes Priory (Sussex), cloister lavatory at, 456
Library, medieval, of the Benedictine Priory of St. Mary, in Worcester cathedral church, Rev. J. K. Floyer, M.A., F.S.A., on, 561; binding of the books, 567; description of the books, 563; number of books remaining, 563; position of the library, 561; titles from the manuscripts, 565
Limburg-on-the-Lahn, inlaid gold book-cover in cathedral of, 272
Linacre (Lanc.), lease of land in, 389
Lincoln, castle of, 321; money jar from, 150
Lindsey, Countess of, *see* Pope, Elizabeth; Earl of, *see* Bertie, Robert
Litchfield, Countess of, *see* Fitzroy, Charlotte; Earl of, *see* Lee, Sir Edward Henry
Lombard, Peter, commentaries on the sentences of, in Worcester library, 569
London:
Charterhouse, The, its old water supply, W. H. St. John Hope, M.A., on, 293, foundation of, 294, plan of buildings, 307, plan of water supply, 297
Churches: All Hallows the Great, 203; All Hallows Staining, 203; St. Alban Wood Street, 205, 207; St. Alphege London Wall, 203; St. Andrew Holborn, 203; St. Anne and St. Agnes, 203, 205; St. Benet Fink, 190; St. Bartholomew-by-the-Exchange, 190; St. Bartholomew-the-Less, 203; St. Catherine Cree, 203; St. Christopher-le-Stocks, 190; St. George Botolph Lane, 190; St. John Zachary, 205; St. Laurence Jewry, 203; St. Margaret Pattens, 203; St. Martin Outwich, 203; St. Matthew Friday Street, encaustic tiles from, 204; St. Mary-Aldermary, 203; St. Mary Staining, 205; St. Mary Woolnoth, 190; St. Michael Bassishaw, Philip Norman, Treasurer, on, 189, 203, churchwardens' accounts of, 204, destruction of, 203, encaustic tiles from, 204, medieval remains of, 203, monuments in, 205; St. Michael Cornhill, 193; St. Michael Crooked Lane, 190; St. Michael Paternoster Royal, 193; St. Michael Wood Street, Philip Norman, Treasurer, on, 189, advowson of, 207, beadle's staff of, 207, bells of, 199, deeds relating to, 206, 208, 209, 210, description of, 190, early history of, 193, encaustic tiles from, 200, inventory of goods of, 212, medieval remains of, 197, painted glass from, 200, stone coffin from, 201; St. Sepulchre, 203
Greyfriars monastery, water supply of, 297
Huggin Lane, derivation of, 207
Roman pottery from, 204
Tower of, 317
London, Robert of, 279
Löwenburg, near Cassel, enamelled glass goblet at, 220
Lucas, Isabella, 194; Margaret, deed of, 194, 208; Robert, will of, 194
Luttrell, Sir Narcissus, diary of, 154

M.

Magniac Collection, ivory tau cross-head formerly in, 408, 410
Mallet, Marguerite, 220

Mandeville, Geoffrey de, 325, 328
Manikyala (Punjab), gold box from, 262
Mann, Nicholas, master of the Charterhouse, 293, 294
Manny, Sir Walter, Lord Manny, founder of the London Charterhouse, 294
Mapowder (Dorset), grant of land in, 389
Mare, Thomas de la, abbot of St. Albans, 285, 289
Marechiano, Bay of Naples, submerged foreshore of, 511
Marten, Sir Henry, 572
Martin, A. T., M.A., F.S.A., Ashby, T., jun., M.A., F.S.A., and Hudd, A. E., F.S.A., on excavations at Caerwent (Mon.), in 1901, 119; in 1902, 391
Mathewe, John, 207
Maud, Empress, 325
Mauger, bishop of Worcester, 564
Mauls, stone, from Stonehenge, 51, 53, 67, 95, 96, 97
May, Baptist, 187
Maydenstone, Walter, bishop of Worcester, 566
Medina, Duke of, 540
Melford (Suffolk), garden-house at, 572
Mellifont abbey (Ireland), cloister lavatory at, 442, 456
Membury, Simon, seal of, 234
Mergellina, Bay of Naples, 534; inscription in Sannazzaro's church at, 539
Meschines, Ranulf de, 362
Middleham (Yorks.), castle of, 363
Millstone, see Quern.
Minoussink (Siberia), bronze axe and pick from, 11
Money jar from Caerwent (Mon.), 150; Lincoln, 150
Monk, Christopher, duke of Albemarle, 187; George, duke of Albemarle, 187
Montgomeri, Roger de, 333
Monza, inlaid gold book-cover in cathedral church of, 271
Morgan, Thomas, 207
Morocco, embassy from, 164
Morthon, Joan de, 206; Thomas de, 206
Morville, Hugh de, 362; Maud de, 362
Morys, John, warden of Winchester College, 234
Mosaic pavements, from Caerwent (Mon.), 123, 124, 126, 127, 130, 140, 393, 401, 402; Silchester (Hants.), 21, 23, 420, 422
Moses, figure of, from the Alcuin bible, 430
Moulins, Roger de, master of the Order of St. John of Jerusalem, 384
Mount Grace (Yorks.), Charterhouse of, 307, 309, 310
Munich (Bavaria), bronze dagger in National Museum at, 3
Mural Painting, the St. Alban's School of, W. Page, F.S.A., on, 275
Mykenae, glass pendants from, 6

N.

Nablous, Garnier de, prior of the Hospital in England, and Grand Master of the Order of St. John of Jerusalem, J. H. Round, M.A., on, 383; charters of, 383, 385, 389; seals of, 383, 385
Nablûs (Palestine), 384
Nagy Szent Miklos, treasure from, 259
Nail, iron, from Stonehenge, 92, 93, 94
Naos, inlaid gold, from Dashur (Egypt), 238
Naples, the submerged Greek and Roman foreshore near, R. T. Günther, M.A., on, 499; the approach to Neapolis from the west by the grotta di Sejano, 544; Bauli, the submerged region of, 549; description of course of road from the Riviera di Chiaja to the Capo di Posilipo, 538; evidence for the former existence of an ancient coast road from Mergellina to the Capo di Posilipo, 534; foreshore between the Rosebery and the Marechiano regions, 509; Gaiola Region, 517, 519, 523, 524, 525, 529; Grotta Dragonara, rock-hewn chambers near, 555; Marechiano Region, 511;

Naples—*continued.*
Misenum Region, 553; Nisida Region, 548; Posilipo Region, 502, 509, 511, 517, 534, 538, 545, 546, 558; Rosebery Region, 502; Scoglio di Virgilio, 530; Trentaremi, 531, 532
Nassiri Khosrau, travels of, 218
Nauplia (Greece), bronze knife from, 7
Naxos (Greece), bronze knife from, 6
Needles, bronze, from Silchester (Hants.), 422
Newton, E. T., note on the animal remains from Silchester (Hants.), 423
Nimrûd (Assyria), bronze weights from, 12; inlaid ivories from, 246
Nisida, Bay of Naples, submerged region of, 548
Niven, W., F.S.A., notes on the garden-house at Beckett, Shrivenham (Berks.), 571
Norman, John, 206
Norman, Philip, Treasurer, on the destroyed church of St. Michael Wood Street, in the City of London, with some notes on the church of St. Michael Bassishaw, 189
North, Sir Dudley, 176
Northburgh, Michael of, bishop of London, 294, 296
Northumberland, Duke of, *see* Fitzroy, George
Norton, Roger of, abbot of St. Albans, 280
Novotcherkask, treasure from, 256

O.

O'Brien, Donogh, 170
Odo of Chartres, Count, 321
Offa II., King of Mercia, 276
Ore (Sussex), flint implement from, 64
Orleton (Hereford), 330
Ormond, Duke of, 173
Ósaka (Japan), castle of, 73
Osborne, Lady Sophia, 170
Our Lord triumphant over the powers of Evil, on an ivory tau cross head, 408
Overmead in manor of Barnersbury, springs at, 296
Overtone, William de, 231, 234, 236
Oxford, castle of, 334; New College, grants to, 343; Worcester College, 564
Oxus, treasure of, 237, 243, 244, 249, 252, 254

P.

Page, W., F.S.A., on the St. Albans school painting, mural and miniature: Part I, Mural painting, 275
Painting, mural, the St. Albans school of, W. Page, F.S.A., on, 275
Palæpolis, town of, 501, 530
Palamidi, glass pendant from, 6
Palmer, Anne, 184
Panel, ivory, in the British Museum, 432
Paris, provost of, official seal of, 344
Parker, Matthew, archbishop of Canterbury, 563
Parthenope, town of, 501, 530
Payn, Robert, 206
Peke, John atte, 236
Pembroke, Countess of, 362, 363, 364, 368, 372, 379, 380, 382
Pendant, glass, from Colophon (Ionia), 6; Ialysos (Rhodes), 6; Mykenæ, 6; Palamidi, 6; Spata, 6
Perche, Egidius de, bishop of Evreux, 342
Persepolis, carved reliefs of, 245
Peter the Painter, 285
Peterborough, cloister lavatory at, 442
Petham (Kent), chapel of Swarling in parish of, 389
Petrossa, treasure from, 241, 259, 267
Pevensey (Sussex), castle of, 314
Pewter objects from Silchester (Hants.), 32
Pick, bronze, from Siberia, 11; deer's horn, from Horningsea (Cambs.), 469; Stonehenge, 72, 104

Pin, brass, from Stonehenge, 93; bone, from Arbor Low (Derbysh.), 466; bronze, from Silchester (Hants.), 422; silver, from Colophon (Ionia), 6, Silchester, 422
Piombino (Italy), inscribed glass vase from, 550
Pits, at Caerwent (Mon.), 133, 134, 139, 144, 150, 151, 398, 399; Silchester (Hants.), 32, 423
Plant remains of Roman Silchester, Clement Reid, F.R.S., on, 34, 425
Plaque, bronze, from Caerwent (Mon.), 128; inlaid gold, from the Oxus, 254; Siberia, 255; ivory, in Royal Museum, Berlin, 432, 433
Pleshey (Essex), castle of, 318, 319, 328; plan of, 329
Plougescant (France), bronze blade from, 5
Pollio, Vedius, 513, 545
Pomfret, Earl of, 170
Pompey the Great, house of, at Bauli, 552
Pontefract (Yorks.), castle of, 331
Pontigny (France), cloister lavatory at, 422
Ponynges, Lucas, 236
Pope, Elizabeth, countess of Lindsey, 184
Porphyry, works of, in Worcester library, 570
Portsmouth, Duchess of, *see* Keroualle, Louise de
Posilipo, Bay of Naples, submerged regions of, 502; course of the road from the Riviera di Chiaja to the Capo di Posilipo, 538; evidence of ancient coast road to, 534; foreshore between the Rosebery and the Marechiano Regions, 509; Gaiola Region, 517; inscriptions from, 546; Marechiano Region, 511; Rosebery Region, 502; topography of, 558; tunnels at, 545
Pottery:
medieval, from Durham Abbey, 455
pre-Roman, from Arbor Low (Derbysh.), 466, Gibb Hill (Derbysh.), 466
Roman, from Arbor Low, 479, 480, 496, Caerwent (Mon.), 129, 131, 132, 133, 146, 150, 151, 399, 402, 403, Lincoln, 150, London, 204, Silchester (Hants.), 19, 32, 417, 423
Pottery—*continued.*
Saracenic, 219
various from Stonehenge, 84, 90, 91, 92, 96, 99, 100, 101, 102, 105
Pritchard, Sir William, lord mayor of London, 182
Putte, John atte, 227; Margery, 227, 228
Pychard, Agnes, deed of, 195, 196, 208, 210; Edward, deed of, 195, 196, 208
Pykyryng, John, 448
Pyrites, iron, from Stonehenge, 91, 92, 94, 104, 105
Pyx, carved ivory, in the Basilewsky Collection, 430, 435; in the British Museum, A. M. Dalton, M.A., F.S.A., on, 429

Q.

Quarrendon, Lord, *see* Lee, Edward Henry
Quern, from Caerwent (Mon.), 123, 132; Silchester (Hants.), 422

R.

Rabula, Syrian gospel of, miniature in, 435
Ravenna, San Apollinare, mosaics of, 435
Rayleigh (Essex), castle of, 328; vineyard at, 328
Read, C. H., Secretary, on a Saracenic goblet of enamelled glass of medieval date, 217; on a morse ivory tau-cross head of English work of the eleventh century, 407
Reid, Clement, F.R.S., on the plant remains of Roman Silchester, 34, 425
Reliquary, inlaid gold, from Afghanistan, 237, 261, 262
Repington, works of, in Worcester library, 570
Resurrection, the history of the, wall painting of, in St. Albans Abbey, 291

Rhazi, Abu Bakr Mahommed ibn Zakariya el, works of, in Worcester library, 564
Rhine, the, inlaid gold brooch from, 239
Rich, Sir Peter, 176
Richard, abbot of St. Albans, 278
Richard the painter, monk of St. Albans, 275, 278; paintings by, 280
Richard the son of Scrob, 316
Richard's Castle (Hereford), 316, 320, 322, 324, 327, 329, 330; plan of, 318
Ring, silver, from Silchester (Hants.), 422
Robert the Mason, 278
Robert, prior of Harmondsworth, 341
Rochester, Countess of, 160; Earl of, *see* Hyde, Laurence.
Rolle, Richard, of Hampole, works of, in Worcester library, 569
Roman remains at or from, Afghanistan, 263; Brecon (Wales), 395; Brougham (Westmorland), 359; Caerwent (Mon.), 119, 391; Collingham, South (Notts.), 573; Lincoln, 150; London, 204; Naples, the submerged Greek and Roman foreshore near, 499; Silchester (Hants.), 17, 413; Wroxeter (Salop.) 395
Romanus II., Emperor, 272
Ropley (Hants.), the charters of the manor of, T. F. Kirby, M.A., F.S.A., on, 227
Rosenheim, M., F.S.A., exhibits silver parcel-gilt altar cruets, 574
Rouen (France), monastery of the Holy Trinity at, 341, charter granted to, 341, 345, seal of, 345
Round, J. H., M.A., on the castles of the Conquest, 313; on Garnier de Nablous, prior of the Hospital in England, and Grand Master of the Order of St. John of Jerusalem, 383
Rowne, John, 207
Roxburgh, Earl of, 169
Russell, Lord, 179
Russia, embassy from, 165
Rych, Edward atte, 236
Rye House Plot, 178

S.

Saham Tony (Norfolk), church of, 343
St. Albans Abbey (Herts.), decoration of the Norman church, 277; figure paintings in, 278, 281, 282, 283; foundation of, 276
St. Albans, school of painting, mural and miniature: Part I. mural painting, W. Page, F.S.A., on, 275
St. Albans, Hugh of, painter, 286, 287; John of, 278; Nicholas of, 278
St. Bernard of Clairvaux, works of, in Worcester library, 569
St. Christopher, wall painting of, in St. Albans Abbey, 287
St. Dogmael (Pembroke), priory of, 563
St. Dunstan, fraternity of, 193
St. Francis, figure of, 525
St. Gall, monastery of, 438
St. Germain-de-Montgomeri (France), earthworks at, 333
St. John, figure of, on an ivory plaque, 432
St. John of Bridlington, 197
St. Leonard's (Sussex), church of, 343
St. Mary de Pré, hospital of, 280
St. Matthew, commentary on, in Worcester library, 569
St. Omer, John of, 276, 284, 285
St. Petersburg, Basilewsky Collection, ivory pyx in, 430, 435; ivory tau cross head in, 408; Hermitage, inlaid gold ornaments in, 255, 256
St. Richard, figure of, 282, 283
St. Thomas, incredulity of, wall painting of, in St. Albans Abbey, 291
St. Thomas of Canterbury, wall painting of, in St. Albans Abbey, 287
St. Valery (Picardy), arms of the abbey of, 346; seals of the abbey and officials of, 345, 346
St. William of York, wall painting of, in St. Albans Abbey, 288, 289

Salter, Samuel, master of the Charterhouse, 294
Sandes, Sir Walter, 234
Saracenic goblet of enamelled glass of medieval date, C. H. Read, Secretary, on, 217
Savoy, Prince Eugene of, 187; Philip of, 187
Scraper, stone, from Arbor Low (Derbysh.), 470, 471, 472, 477, 479, 482, 483, 484, 497
Scrupe, Osbern, 330; Richard, 330
Seals:
  Archdeacons: Campden, John de, archdeacon of Surrey, 235
  Monastic and collegiate: abbot of St. Valery (Picardy), 346; John, abbot of Holy Trinity, Rouen (France), 345; John de Jonnalle, prior of St. Valery, 346; Rouen, monastery of the Holy Trinity, 345; St. Valery, abbey of, 345; Sheen (Surrey), priory of Jesus of Bethlehem, 347; Winchester college, 233
  Episcopal: Cooper, Thomas, bishop of Winchester, 229; Fox, Richard, bishop of Winchester, 229; Woodlock, Henry, bishop of Winchester, 231
  Official: Paris, provost of, 344; Southampton, for recognisance of debtors, 236; St. Valery, treasurer of abbey of, 346
  Personal: Gerveys, Andrew, 232; Gerveys, Roger, 234; Godwin the Minister, 412; Membury, Simon, 234
  Privy: Charles II., king, 157; Cooper, Thomas, bishop of Winchester, 229; Stuart, James, duke of York, 157
  Royal: great, of Henry IV., 229
Seggesberrow, Thomas de, monk of Worcester, 565, 566
Sejano, Grotta di, Bay of Naples, 544
Selerugge, Hugh de, 231
Senatus, prior of Worcester, 564
Sevenoke, William, 206
Shalmeneser IV., 12
Sheen (Surrey), priory of Jesus of Bethlehem, seal of, 347
Sheep clippers, iron, from Caerwent (Mon.), 403
Shrine, supposed, at Caerwent (Mon.), 149
Shrivenham (Berks.), the garden-house at Beckett, notes on, by W. Niven, F.S.A., 571
Siberia, bronze objects from, 11; inlaid gold ornaments from, 252, 255
Sidon (Palestine), bronze axe from, 13
Silchester (Hants.) excavations on the site of the Roman city at, W. H. St. John Hope, M.A., on, in 1901, 17; in 1902, 413; animal remains from, 19, 423; architectural remains from, 29, 422; bird bones from, 20, 424; block plan of portions excavated up to 1901, 33, to 1902, 428; bone objects from, 423; bronze objects from, 422; coins from, 32, 423; construction of houses at, 24; fireplaces at, 20, 26, 417; fish bones from, 425; glass objects from, 32; hearths at, 17, 18, 29, 416, 420, 421; inscriptions from, 30, 422; *Insula* XXII., buildings in, 17; *Insula* XXVII., buildings in, 18, 420; *Insula* XXIX., buildings in, 415, 420; *Insula* XXX., buildings in, 414; *Insula* XXXI., buildings in, 416; *Insula* XXXII., buildings in, 417; iron objects from, 32, 422, 423; mosaics from, 21, 23, 420, 422; pewter objects from, 32; pipeclay figure from, 423; pits at, 32, 423; plant remains from, Clement Reid, F.R.S., on, 34, 425; pottery from, 19, 32, 417, 423; querns from, 422; shale objects from, 423; silver objects from, 422; solder from, 422; stamped clay from, 25; stone implement from, 423; tile scored for games from, 31; wall plaster from, 19, 22, 422; wells, wooden lined at, 32, 415, 416, 417, 419, 421, 423; wooden objects from, 423
Silver objects: altar cruets, 574; pin, from Colophon (Ionia), 6, Silchester (Hants.), 422; ring, from Silchester, 422; torque, from Silchester, 422
Simon the painter, works of, 280
Skelton, Sir Thomas, 234

Skilling, John, 234
Sneyd, Rev. W., pyx formerly belonging to, 429
Solder, rod of, from Silchester (Hants.), 422
"Soul," inlaid gold, from Dashur (Egypt), 238
Southampton, seal for recognisances of debtors at, 236
Spain, buckle of inlaid gold from, 239
Spata, glass pendants from, 6
Spelsbury (Oxon.), monument at, 153
Spet family, arms of, 226
Spoon, bronze, from Caerwent (Mon.), 125
Spur, iron, from Silchester (Hants.), 423
Staple, iron, from Silchester (Hants.), 32
Steelyard weight, lead, from Caerwent (Mon.), 403
Stennis (Orkney), stone circle at, 461
Stoket, Nicholas, 344
Stonehenge (Wilts.), recent excavations at, W. Gowland, F.S.A., on, 37; age of, 84; bones from, 71; chips of stones employed in the building of, 109; coins from, 49, 51, 72, 90, 91, 94, 96, 100; description of the excavations, containing an account of the nature and contents of each layer of material removed, 90; erection of the stones, 73, 80; excavation of, 47; mode of conducting the excavations, 40; note on the nature and origin of the rock-fragments found in the excavations, by Professor J. W. Judd, F.R.S., 106; objects found in the excavations, 56; purpose and origin of, 87; rocks of which the stones consist, 45; rocks used as tools by the builders, 114; shaping and dressing the stones, 75; sources from whence the materials were derived, 115; stone implements from, 49, 51, 53, 55, 57, 90—105; transport of the stones, 73
Stone and flint implements, from Arbor Low (Derby), 469, 470, 471, 472, 475, 477, 479, 480, 482, 483, 484, 485, 497; Cissbury (Sussex), 63, 64, 65; Grimes Graves, near Brandon (Norfolk), 63, 64, 65; Ore (Sussex), 64; Silchester (Hants.), 423; Stonehenge (Wilts.), 49, 51, 53, 55, 57, 90—105; Stourpaine (Dorset), 63, 64, 65
Stone objects, head from Caerwent (Mon.), 148
Stool, bronze, model of, from Caerwent (Mon.), 143
Stourpaine (Dorset), flint implements from, 63, 64, 65
Stratford, Ralph of, bishop of London, 295, 306
Stuart, Charlotte Maria, 173, 176; James, duke of York, some familiar letters of, addressed to his niece, the Countess of Litchfield, Viscount Dillon, President, on, 153, signet of, 157
Stuttgart, figures from a psalter in the royal library at, 433, 434
Suain of Essex, 328
Suffolk, Countess of, *see* Villiers, Barbara
Sutton (Hants.), sale of manor of, 230
Sutton, Thomas, 312
Svinthila, king of the Visigoths, crown of, 241
Swafham, John de, notary, 344
Swarling (Kent), chapel of, 389
Sword hilt, inlaid ivory, from Hallstatt (Austria), 248
Sydney, Algernon, 183; Robert, earl of Leicester, 183
Sylvere, John, 236

T.

Taman Peninsula, inlaid gold ornaments from, 259
Tau cross head, ivory, of English work of the eleventh century, C. H. Read, Secretary, on, 407; in the Basilewsky Collection, 408; formerly in the Magniac Collection, 408, 410; in the Victoria and Albert Museum, 408, 409, 411, 412
T-bolts, iron, from Caerwent (Mon.), 135
Tenterden (Kent), garden-house at Place House, 572
Teyntur, Hugh le, 285
Thanet, Earl of, 363, 382
Theobalds (Herts.), garden-house at, 572

Theodelinda, Queen, 271
Thomas the painter, 285, 286
Thomond, Earl of, 170
Thoronet (France), cloister lavatory at, 442
Thorp, Robert de, 232
Thuddene, John de, 231
Thynne, Tom, 166, 187
Tibberton (Worcester), appropriation of church of, 566
Tickhill (Yorks.), castle of, 331
Tiles, encaustic, from St. Matthew Friday Street, London, 204, St. Michael Bassishaw, London, 204, St. Michael Wood Street, London, 200; inscribed, from Silchester (Hants.), 30; scored for games, from Silchester, 31
Tingewick (Bucks.), church and manor of, 343
Torque, silver, from Silchester (Hants.), 422
Tournai (France), tomb of Childeric I. at, 239
Towcester (Northants.), moated mound at, 333
Trefnant, John, bishop of Hereford, 342
Trentaremi Bay, Naples, ancient quarries of, 532; submerged foreshore at, 531
Tripoli, manufacture of glass at, 218
Trumpington, William of, abbot of St. Albans, 279, 284
Trunch, Robert of, 288
Tudela, Benjamin of, 218
Turnell, William, 197
Turner, Sir William, 174
Tycheborne, John de, 231
Tychefeld, Robert, 235
Tyghale, pedigree of, 235
Tyre, manufacture of glass at, 218
Tyre, William of, 218
Tyres, iron, from Silchester (Hants.), 32
Tysteele, Richard de, 231, 236; William, 236
Tweeddale, Marquis of, 169
Twickenham (Middlesex), charters of, T. F. Kirby, M.A., F.S.A., on, 341, 345

U.

Upham, John, 236
Urban VI., pope, 342

V.

Vacarius, commentary of, in Worcester library, 564
Van (Armenia), bronze axe from, 8
Vaphio (Laconia), bronze axe from, 14; bronze knife from, 6
Varro, Marcus, 552
Vase, bronze, from Caerwent (Mon.), 405; glass, inscribed, from Piombino (Italy), 550
Vatia, Servilius, 523
Vaux, arms of, 365
Venus, pipeclay figure of, from Silchester (Hants.), 423
Venus Lucrina, temple of, at Bauli, 552
Veruela (Spain), cloister lavatory at, 442
Vessels, inlaid gold, from Petrossa, 268
Veteripont, Isabel de, 365; Maud de, 362; Robert de, 362; William de, 362
Victoria and Albert Museum, electrotypes of gold ornaments in, 255, 269; ivory book-cover in, 431; ivory tau cross heads in, 408, 409, 411, 412
Villiers, Barbara, duchess of Cleveland, 153; Barbara, duchess of Suffolk, 163; Sir Edward, 163
Virgin and Child, the, wall painting of, in St. Albans abbey, 283
Virgin, Coronation of the, paintings of, in St. Albans Abbey, 282, 290
Veii, inlaid ivory sheath from, 248

W.

Waldegrave, Sir Henry, 188
Wallingford (Berks.), castle of, 315; ivory seal from, 412; priory of, 280
Wallop, Richard, 234, 235
Wall paintings, of Roman houses etc. built in or near the sea, 504, 505, 507, 520; in St. Albans Abbey, 275-292
Wall plaster, from Caerwent (Mon.), 123, 125, 127, 129, 130, 132, 133, 135, 136, 137, 141, 142, 143, 145, 393, 399, 400, 402; Silchester (Hants.), 19, 22, 422

Walsh, Mary, 180
Walter the painter, 285, 286
Waltham, Great (Essex), vineyard at, 328
Wandelesworth, William de, 228
Ware (Herts.), vineyard at, 328
Ware, John, 344
Warenne, William de, 333
Warenner, Thomas, 234
Warwick, castle of, 314, 315
Warwick, Rotrocus de, archbishop of Rouen, 342
Washing, monastic rules as to, 438
Watton Priory (Yorks.), painted glass from, 200
Wayte, Thomas, 236
Weapons and implements, bronze, some rare forms of, Rev. W. Greenwell, D.C.L., F.R.S., F.S.A., on, 1
Weights, bronze, from Nimrûd, 12
Welde, Augustin, 233
Welforde, Thomas. 196
Wells, stone-lined, at Durham Abbey, 453, objects from, 455; Caerwent (Mon.), 133, 398; wooden-lined, at Silchester (Hants.), 32, 415, 416, 417, 419, 421, 423
Wenlock priory (Salop.), cloister lavatory at, 442, 456
Wentworth, Sir Richard, 163
Werefrith, bishop of Worcester, 563
Wessington, John, prior of Durham, 451
Westminster abbey, lectern for chapter house, 276, 284
Westminster, Thomas of, 286
Wharton, Harry, 165
Whatcombe (Dorset), tumulus at, 473
Wheathampstead, John of, abbot of St. Albans, 285, 291
Whyte, E. T., M.A., F.S.A., on Brougham castle (Westmorland), 359
Wihtgar, 313
Williams, Rev. A. H., tau cross head exhibited by, 407
Wimbledon (Surrey), garden-house at, 572
Winchester (Hants.), college of, 228, 230, 235, 342, 343, 345, 347, 348, seal of, 233; hospital of St. Cross, 384
Windsor (Berks.), castle of, 331; St. George's chapel, precentor's staff of, 411
Witham (Essex), castle of, 328
Wolfsheim, near Mayence, inlaid gold girdle-plate from, 245, 265
Wollaston, Sir John, 230
Wollore, David de, 232
Wooden objects: bucket, from Caerwent (Mon.), 399, Durham, 455, Silchester (Hants.), 423
Woodlock, Henry, bishop of Winchester, 231; seals of, 231
Woolley, T. C., exhibits cheek-piece of Roman helmet from South Collingham (Notts.), 573
Wor Barrow, Handley Down (Dorset), 469, 474
Worcester Cathedral, the medieval library of the Benedictine Priory of St. Mary, in church of, Rev. J. K. Floyer, M.A., F.S.A., on, 561; bindings of the books, 567; description of the books, 563; number of books remaining, 563; position of the library, 561; titles from the manuscripts, 565
Worcester, Florence of, chronicle of, 564; Ralph of, 326
Worcester service book, in library at Worcester, 564
Worstede, John de, 195, 196
Wren, Sir Christopher, plan of, for rebuilding London, 189
Wroxeter (Salop), Roman remains at, 395
Wyke, John de, prior of Worcester, 566
Wykeham, John, 235; Sir Thomas, 235; William of, bishop of Winchester, 228, 232, 233, 234, 342, 343, 344

X.

Xenophantos, vase of, 254

Y.

Yarkand, inlaid hookah from, 257
York, castles of, 317, 325

Westminster: Printed by J. B. Nichols and Sons, Parliament Mansions, Orchard Street, Victoria Street, S.W.